

# AMERICAN INEMATOGRAPHER

The Motion Picture CAMERA Magazine

FEBRUARY,

1935

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# AMERICAN CINEMATOGRAPHER

A Technical and Educational publication  
of motion picture photography

Published monthly by the  
AMERICAN SOCIETY  
OF CINEMATOGRAPHERS, INC.  
6351 Hollywood Boulevard  
Hollywood, California

Telephone Glendale 2133

JOHN ARNOLD, President, A.S.C.  
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● Lindsley Lane will give us another comprehensive article on the relation of the cameraman to production.

● James L. Fritz, the noted dramatic editor, will give us an interview with several leading cameramen. He will analyze their photography from the newspaper man's standpoint.

● Other members of the American Society of Cinematographers will express their views on cinematography and its creative phases.



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City. Phone PLaza 3-0483.

Neither the American Cinematographer nor  
the American Society of Cinematographers  
is responsible for statements made by au-  
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ESTABLISHED 1918. Advertising Rates on application.  
Subscription: U.S. \$3.50 a year; Canada \$3.50 a year;  
Foreign \$5.50 a year. Single copies 25¢. Foreign  
single copies 35¢. COPYRIGHT 1955 by American  
Society of Cinematographers, Inc.



THE AMERICAN SOCIETY OF CINEMATOGRAPHERS was founded in 1918 for the purpose of bringing into closer confederation and cooperation all those leaders in the cinematographic art and science whose aim is and ever will be to strive for pre-eminence in artistic perfection and technical mastery of this art and science. Its purpose is to further the artistic and scientific advancement of the cinema and its allied crafts through unceasing research and experimentation as well as through bringing the artists and the scientists of cinematography into more intimate fellowship. To this end its membership is composed of the outstanding cinematographers of the world with Associate and Honorary memberships bestowed upon those who, though not active cinematographers, are engaged none the less in kindred pursuits, and who have, by their achievements, contributed outstandingly to the progress of cinematography as an Art or as a Science. To further these lofty aims and to fittingly chronicle the progress of cinematography, the Society's publication, The American Cinematographer, is dedicated

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Above is a picture of a scene ready to go into action, to follow the girl as she walks up the stairs.

THE OTHER day as I was discussing photography with one of the stars of my forthcoming picture, the actress said to me, "Mr. Wilner, the man who photographed my last picture certainly had an awful problem on his hands. The director insisted on keeping the camera moving in almost every shot, even I could see that this gave the cameraman an almost impossible task. Time after time this director would dolly from an extreme long-shot to a big-head close-up of me. It didn't help the story any—and I'll never understand how the Cinematographer managed to photograph me as well as he did, surely, he got no help from the director! Why in the world do so many directors oversell this moving-camera business so badly?"

I couldn't answer that question immediately. It has been my good fortune to work with several directors who understand the use of the moving camera, and employ it wisely—even brilliantly. It has also been my bad luck to work with other directors whose use of travelling shots can only be described as stupid, or worse. Certainly, no trick of film-craftsmanship can be more effective when correctly used; but for the past few years we have endured a veritable orgy of indiscriminate dolly-ing. Many times a Cinematographer will begin a picture by putting his camera on a dolly—and never remove it (or stop moving) until the picture is finished. There is far too much truth in the joke that Cinematographers, instead of asking "How many scenes did you shoot today?" now ask "How many miles did you dolly today?"

In my own experience, two directors stand out for their intelligent use of the moving camera. Ernst Lubitsch, and Cecil B. de Mille. Both of them use camera-movement only to emphasize a definite climax in dialogue or performance. Lubitsch, for example, regards camera movement as something to be used as precisely as punctuation. When he moves the camera, he invariably does it at a time when it is necessary to bring the audience closer to some imper-

## Let's Stop

tant bit of business—some word, act or expression which high-lights a whole scene or sequence. And he makes sure that the technique of the shot is so flawless that the movement is virtually imperceptible to the audience—natural, inevitable, and wholly subservient to the story-action.

De Mille's use of the technique is best illustrated by two shots in "Cleopatra." The first is in the atrium of Caesar's palace in Rome, where the camera moves through the crowd, picking up a word from this group, a sentence from that, showing that every tongue is wagging with gossip about Caesar, and finally coming to rest upon the climax of the scene—Brutus and the three conspirators plotting Caesar's assassination. The second was more or less the reverse of this, for it began with a close shot of Antony making love to Cleopatra on the barge, then the curtains were dropped around them, and the camera re-acted to reveal the immensity and splendor of the setting, thus pointing the intimacy they achieved in spite of such regal and public surroundings.

On the other hand, I have worked with other directors who insisted on dolly-ing frequently—seldom for any positive cinematic or dramatic reason—and with at least one whose only thought of sets was that there be sufficient room to dolly continuously!

I decided to see if other outstanding Cinematographers did not agree with me that the moving camera is being gravely abused by a great many directors, to the detriment of their productions. Charles G. Clarke, A.S.C., says, "The average moving-shot is simply a sign of directional weakness. Of course, a moving-camera shot—in its right place—can be very effective, but to me the majority of such shots are simply indications that the director is not sure of his craftsmanship. All too often, they are dragged into a sequence without rhyme or reason—many times when more sure direction would make normal shots and cuts tell the story far more effectively. In such cases I believe that the director is simply fooling himself in one of two ways. It may be that he is unable to give the scene its proper tempo—is keep it moving fast enough—so he introduces the false movement of a dolly or crane shot in order to make himself (and his superiors) believe that the scene is moving properly.

"In other instances, the misuse of such shots is an even more pitiable admission, that the director feels his methods growing 'old-fashioned.' In such a case, he resorts to the moving-camera technique as a viable means of showing that he, too, can be 'modern.'"

James Wong Howe, A.S.C., said, "The average moving-shot results simply in injecting a sort of false movement into a scene or sequence. It interrupts the progress of the story, and wastes valuable film-footage. For example, suppose we have a long-shot of a man, and want to bring the audience closer to him for some reason. If we move the camera toward him, and truck to a close-up, we

# Abusing Camera Movement

by  
Victor Milner, A.S.C.

delay the dramatic action, and waste much valuable screen-time. Moreover, the camera should always be regarded as representing either the eye of the audience or, in rare instances, the eye of another player. Now the audience cannot move closer to the player in the theatre, and our scene has not showed any other player approaching him. Therefore if we must bring the audience's attention to the player's face, the natural thing to do is to progress by direct cuts from the long-shot to the closer one. Yet if the situation emphatically calls for the moving camera, the way to make the trick appear natural—and hence undisturbing to the audience—is to have the actor start toward the camera and then—and only then—allow the camera to move forward. If the camera in its motion is to represent the eye of another player, the logical treatment would be a shot of the second player starting to move forward, followed by the trucking shot. In either instance, the movement is coordinated with something which makes the changing viewpoint believable.

"It is always a breach of cinematic good taste to dolly around a player. Such treatment is largely used in instances where surprise is dramatically vital—but it gives the audience very clumsy warning that something is to be seen 'just around the corner'."

"Scenes in which the camera follows players walking through a set are illogical and distracting—once more a case of false motion. It is far better to use an ordinary shot through which the player walks, for this gives a more definite impression of movement."

"From the purely photographic viewpoint, most moving-shots take us right back to the deplorable 'early talkie' conditions. Even though the scene may be a close angle, it must, due to the physical requirements of the camera movement, be lit as a long-shot. This of course precludes the refined lighting of a true close-up, and makes it virtually impossible to maintain a uniform quality throughout the picture. Where stars who require a definite type of lighting are concerned, this is most unfair to both star and Cinematographer, and wastes time, effort and money without an adequate dramatic return."

Giuseppe Gavdo, A.S.C., remarked, "A crane or dolly

shot is just like any other photographic trick—diffusion, character lighting, flat lighting, etc.—good only when used in its proper place, and bad when used in any other time, or in any other way."

"I think that there are three points that should be considered. First of all, the physical equipment we have for making moving-camera shots is as yet far from perfect. Aside from ordinary panning shots, where the camera is actually motionless, and the movement is produced by a skilled operator, we have to make our dolly and crane shots with equipment that is in some degree a makeshift. To be technically perfect, a moving-camera shot should be as smooth as is our own vision when we turn our head slowly. I don't think anyone has ever made a travelling-shot that smooth! Consider the problem on a floor-area only a few feet square, we are combining the weights of the Cinematographer, the Director, the operative camera-crew, the microphone-man, a microphone-boom, lights, a heavy blimped camera, and the weight of the perambulator itself (which may be several tons alone)!. This will inevitably show up any weakness or irregularity in the stage floor and when we do put down some sort of a track, it is usually flimsy, and often a makeshift affair thrown together out of rough planks. How can such a shot be smooth?"

"Secondly, moving-shots interfere with good composition. You may be able to begin with a good composition, or to end with one. Sometimes you may even manage to begin and end with good composition—but you can't for the life of you make every last frame of a dolly-shot where the camera trucks forty or fifty feet through a set a satisfactory composition! And in motion pictures, composition isn't just an artistic talking-point—it's good business, for it focuses the audience's attention where you want it, and

(Continued on Page 58)



Above, view of a crane set to pick up the characters on the staircase and to follow them. Below, a perambulator in what would look like a tight spot for follow-up work.

THROUGHOUT time in life there is change—inevitable flux and cumulation. Man gives various interpretations to this change, sometimes calling it Progress. Possibly there is no more interesting and perfect example of progressive development than the motion picture, because of its spectacular and rapid growth, its importance as a phase of modern times, and the fact that the screen is a broad reflector and interpreter of life, depicting past and present manifestations of that continuous changing.

The motion picture is indigenous with modern times, it could have no being until the present economic, scientific and cultural conditions prevailed, and because it is so significantly integrated with the life of today and is the most human aesthetic medium, it is potentially the greatest living art, with fascinating possibilities of becoming the most powerful civilizing and aesthetic influence in the future.

The entire process of motion picture creating is one of selection, synthesis and emphasis, the purpose of which is to stimulate the picture-goer's imagination. During the showing of a picture the perceiver's imagination is directed and controlled, so that there is indicated a fuller significance in the picture's philosophy than is specifically delineated. Also there is a far broader range of visual and aural images conjured before the mind's eye and ear than is actually shown on the screen. Furthermore, the various story characters gain many solidifying attributes, becoming more real and human than the limited number of times, places and situations that they appear in a picture would alone make the observer believe them to be. In other words, it is as though the picture were a leading melody, and the supplementary imaginings stimulated by the picture in the perceiver's mind, a counter-melody, this counter-melody forming with the picture a whole experience of great satisfying completeness.

The relative presence or lack of this complete experience of imagination stimulated in the perceiver exerts decidedly more influence upon the success or failure of a picture than is generally appreciated. Frank Capra is today the most consistent exponent of full composite melody through picture stimulating counter-imagination, and as a consequence his pictures are referred to as being "alive." Such "aliveness" is exemplified in the phenomenally successful "It Happened One Night" and "Broadway Bill."

Counter-melody, as thought of here, is composed of two general factors: (1) the sum of the perceiver's own personality (past experiences) projected into thoughts, characters, things and situations portrayed on the screen, plus (2) his specifically conditioned responses to certain technique, symbols and implications (weather and fowl), conventionalized through repeated employment in extending the scope of the temporally and spatially limited cinematic medium.

Time goes on and motion pictures improve. There is, first, the cumulation of experience within the community obtained through contact with life, and, secondly, the accustoming of motion picture audiences to a language that becomes more diverse as they learn its idiom. Each of these two factors interacting with and influencing the other, and in turn being stimulated by and stimulating the other to further growth.

So it is that the motion picture in its continuing progress of refinement and range of expressiveness is becoming less and less a simple universal tongue and ever more a language to be understood only by the cultivated initiate. And it is this fact, fundamentally, which commands each of the medium's creative contributors to a common high



Grand happened photography, made it stark as though we considered it momentary importance, but photography is again coming into its rightful important place.

## Cinematographer Plays

place culturally and aesthetically. The philosophical concepts bearing upon the picture's construction and story, possessed by the director and author must likewise be the property and working basis of the cinematographer, otherwise no consistently mature dramatic-pictorial result is possible.

As the Director of Photography approaches the ideal of his function, his work will become increasingly intellectual. This is not to say that his control over lights and camera will be lessened; on the contrary, it will be amplified. Released from the confining operations of mechanical routines, he may more ably watch over the broader aspects of synchronizing his instruments to the fullest cinematographic unification of the photoplay material and form with its subject matter.

And, for the same reasons that the director of photography is compelled to take on larger responsibilities, and to detail certain duties and trusts to his operative cameraman and assistant that he formerly exercised himself, so must the operative and assistant realize and assume their new responsibilities. The operative will know the story, will anticipate more closely new set-ups and changes that occur during shooting, must know his chief and his methods better, so that he can work with the cinematographer more perfectly, and of most importance, the director and cinematographer must be able to rely implicitly on the operative's judgment as to the correctness and effectiveness of the camera and its movement in recording the scene. That means the competent operative will be a thorough student of his work as it applies through the psychology of fluxing composition to the dramatic content of the story. As an ambitious cameraman, he will constantly train himself in the basic concepts essential to eventual directorship of photography.





A.  
Lindsay  
Lane, A.S.C.

## Leading Part in Group of Creative Minds

By  
A. Lindsay Lane, A.S.C.

It is now generally acknowledged that four main elements constitute the substance of motion picture creating: Author, Director, Cinematographer and Actor—all bound together by a common purpose under the supervision of the producer. As the screen has progressed, each of these co-workers, starting from lowly beginnings, has advanced his technique and improved the quality of his individual contribution to the finished photoplay. Of these four the Cinematographer has realized least recognition, for the scientific development of his tools and the tremendous impetus given his work by the introduction of ever more sensitive film have, to a large extent, confused the issue and overshadowed his own achievements as a creative artist. However, because of the motion picture medium proving itself through time to be exactly what it is—the means of telling a story primarily through the motion picture camera—the Cinematographer must eventually arrive at his logical place in the group of creative motion picture co-workers.

The Cinematographer made steady artistic progress from the inception of the first features until the advent of the "talkie," at which time he suffered a severe set-back.

Mayer technical changes affected him adversely, and temporarily pushed him aside floundering in a slough of uncertainty and stilted cinematography.

Gradually, as the novelty of sound wore away, and the newly begotten problems of audible screen characters were partially solved, some of the pictorial restrictions were loosened, largely through the insistent efforts of the Cinematographer, and in time not only was the "silent photoplay cinematography" of mobility and expressiveness regained, but also (and partly because of the new conditions imposed on cinematography by sound) a higher degree of artistry was attained than theretofore. For example, it was now possible to mix hard and soft light, with the attendant extended range of monochrome vitality and delicacy in dramatic contrast giving a finer illusion of naturalness and reality.

Then too, the formal separation of camera operation from general photographic supervision and lighting was forced upon the industry at this juncture because of multiple-camera shots and the much added bulk of sound cameras over the compact and more easily manipulated silent cameras. Also the nascent sound-picture tempo made necessary a greater mobility of camera, which, with the camera equipment's increased inertia, made inevitable on advancement of the second cameraman to operative cameraman, he assuming responsibility for all physical operation of the camera, the director of photography and the operative now working together as a unit of augmented effectiveness. The beneficial results of this apportionment of endeavor failed to show at first, but later when everyone concerned with the making of talking pictures knew better what they were doing, and the multiple-camera shots were fast losing favor, there came a marked improvement in cinematographic-dramatic interpretation.

Going back again to early sound-cinematography troubles, there was the uncinematic bias of dialogue itself. Much of the static quality of the first talkies was due to over-long dialogue scenes, resembling the manner of the legitimate theatre. These extended moods were difficult of capturing and sustaining, so directors often demanded that entire sequences be photographed in a continuous multiple-camera shot; thus devastating the fluency of the camera eye.

So the tendency of the talkie was to remove cinematography further away from its inevitable function—that of more than a mere vehicle for dramatic photoplays—that of a part of the dramatic expression and intent itself. The talkies stigmatized cinematography as a necessary evil to be tolerated.

As the various results of this short-sighted attitude became evident, producers and directors re-awakened to the essential need for cinematography as an integral part of the emotional flow of a photoplay if the success of talking films was to become permanent. And the tortuous way back to the old silent days' technique of many angles and rapid cuts, plus sound-camera equipment, was begun.

But it was discovered that simply to go back brought no basic solution, aesthetic obstacles intervened which were impossible of attack with the old methods. An almost entirely new medium had arrived with the audible character. For one thing, adjusting and balancing the components of the silent picture to and with the audible screen presented a fine problem of tempo. It became apparent that a strange paradox existed in the tempo of the talkies, as compared with the simpler construction of temporal progression in the silent picture.

(Continued on Page 55)

# Variety Names Ten Best Cinematographers

"Variety" Issue of January 1, 1935

**Editor's Note:** This year "Variety," one of the Show World's leading trade papers, names the Ten Best Cinematographers and comments upon these selections and the cinema clear in general. We find you herewith Variety's article in full.

**S**TARS will tolerate supervisors, producers or directors. They will argue over stories or scripts, bottle over clothes and give in most of the time. But when it comes to a cameraman—that's where the star will stand like Gibraltar. The favorite cameraman must be or the picture doesn't start.

Several of the famous stars demand their own particular cameraman, even have it specified in studio contracts that certain cinematographers be assigned to their pictures. Others hold verbal agreement with the contracting studio that they have the right to select the man who is to photograph them.

Top stars seem to figure that the cameraman holds the key to the problem of keeping on top of the heap. And make no mistake, a regular cinematographer who intently studies setups for both close and long shots, to protect the player against either poor lighting or composition that plays down the star, is worth fighting for.

Many times top ranking players, and in some instances directors, have refused to start pictures until the cameramen desired are available. The situation leaves nothing for a studio to do but pull the demanded photographer off another production or stall the picture until he is available.

## Denish and Gerbo

For instance, William Denish has photographed Greta Garbo since her first picture at Metro nearly 10 years ago, and the Swedish girl will not go to work until Denish is behind the lens. He has also photographed Norma Shearer for the past several years. Should both Garbo and Shearer happen to be in production at the same time, or their pictures overlap, Denish goes with Garbo.

George Foley got a break to handle a Marion Davies feature more than a year ago. Now she won't have any other cameraman on her pictures. With the star moving over from M-G to Warners it is likely that a loan-out deal for Foley will be arranged. Up to the coming of sound, John Arnold handled the Davies productions and was always held by Metro for her.

Rollie Totheroh has been chief of the camera staff for Charles Chaplin since 1917 and was coined between pic-

## 10 BEST CAMERAMEN

William Denish—Metro  
George Foley—Metro  
Roy Jun—Goldwyn  
Charles Long—Paramount  
Vicher Milner—Paramount  
Karl Struss—Paramount  
James Wong Howe—Metro  
Charles Rosher—20th Century  
George Sereno—Warners  
Arthur Miller—Fox

## SECOND TEN

Toxy Gaudio—Warners  
Bert Glennon—Fox  
Oliver Moros—Metro  
John Smith—Fox  
James Van Trees—Warners  
Leo Tover—Paramount  
Percival Marley—20th Century  
George Schneiderman—Fox  
Joe Walker—Columbia  
Sol Polito—Warners

## TOP SPECIALISTS

Exteriors—Clyde DeVries, Joe Valentine, M-G.  
Airplane photography—Elmer Dyer, WB.  
Process and trick work—Fred Jackman, WB; Percival Edwards, Fox; Vera Walker, Radio.

tures by the comedian up to about five years ago. Walter Lunden has been with Harold Lloyd since the comedian started his own production unit some 10 years ago.

Victor Milner, perhaps the dean of cinematographers in point of service now consistently working, has made track as head cameraman on any picture Ernst Lubitsch directs. Pair split when the director went to Metro to make "Merry Widow," as Milner was tied up with DeMille on "Cleopatra" at Paramount, where he is under contract. Milner goes on the next DeMille picture and no one knows what will develop if Lubitsch is ready to shift his next Paramount around the same time.

Until his sudden death some weeks ago, Henry Germond had first call on any and all pictures Katharine Hepburn made at Radio. Joe Walker must be behind the camera when Frank Capra rolls up his sleeves at Columbia. Walker made a trip back from London, where he was offered several pictures in a row, to camera for Capra on "It Happened One Night."

## Clark's 87 for Mix

Of the old-time star-cameraman teams Don Clark probably holds a record in photographing 87 straight Tom Mix westerns between Fox and Universal. Charles Rosher was exclusive cameraman for Mary Pickford for a long time and Tony Gaudio was the first pick when Norma Talnadge was starting for Joe Schenck. The late Billy Bitzer was with D. W. Griffith for years and Pev Marley seemed to be the camera shadow for Cecil DeMille over a

(Continued on Page 58)



At the camera is Charles Lang, A.S.C. Cinematographer Lang was last year awarded the trophy for Photography by the Academy of Motion Picture Arts and Sciences.

## Lang's Photography Has Vitality Says Critic

by  
**James L. Fritz**

Formerly Dramatic Editor of St. Louis  
Post Dispatch and N. Y. Daily Mirror.

**A**FTER talking to this quiet and unassuming young man who rose from the lowly rank of an assistant in the laboratory, to become the winner of the 1934 Academy Award, you can readily see why his pictures possess the dynamic vitality that almost makes them live and breathe, instead of remaining an inanimate piece of celluloid.

Charles Lang, who studied to become an attorney and then changed his entire life, so that he would be able to follow the one thing that meant most to him, cinematography, has, beneath his calm exterior, this same gripping vitality and dynamic energy that you feel in his art.

In his latest picture, "Lives of a Bengal Lancer," this something that has made him one of Hollywood's best

cinematographers, is undeniably present. True, in this production, Lang had a great deal to work upon, but on the other hand, the picturesque beauty of the native costumes, as if it is captured by his lens, makes the production seem almost real. Again, in the last scene of the picture, this vital something makes itself strongly felt by bringing out the dramatic pathos and stirring action, which, in Lang's work is always so remarkably apparent.

Lang never allows his subject to become drab and colorless. He endeavors, at all times, to place himself in the frame of mind of the audience, so that his camera, instead of remaining the cold mechanical eye that it is, becomes the eye of an artist. An artist who is able to see more than what appears on the surface, but is gifted with an ability to capture and hold the throbbing undercurrent of life itself. His dealing thus with a subject, also brings out the true underlying qualities of the subject, therefore making what we see, more than merely a reproduction of the subject, but allows us to absorb with our eyes, the personality and emotion embodied in the subject.

Lang admits that he does not know how he manages to inject this gripping vitality into his pictures. He also admits that there is no set rule or formula to follow, to obtain this effect. Yet he tells us that it is not a special gift of talent, but that any cinematographer may create the same illusions, by delving into extensive research in the art of cinematography. When working on a picture, Lang is not merely the man behind the camera. He becomes a combination of a sculptor and painter. His lens is the chisel with which he molds his subject into a thing of life and beauty, and his lights are the brush with which he endows it with vitality and color.

Any cinematographer knows that there is no definite course to follow to obtain these effects. He, like a painter, merely learns through his past mistakes, which are oft times many, and the old recognized school of long experience. We compare a cinematographer to a painter, because he too, is an artist. Where the painter works with oils, the cinematographer brings out his picture with lights and shadows. To illustrate this, we will go far back into history.

The first photographers endeavored to bring out their subjects in a hard, cold print. The result of this was often brutal. The following generation of photographers went to the other extreme and began shading and softening their subject, until the result was even worse. The lines became blurred and fuzzy, and the subject, instead of relying on the appearance of a painted portrait, the effect they were trying to capture, became an unintelligible mass of shades, with no definite outline.

Where those pioneers of the lens made their mistake, was in trying to copy. To copy a wrong—to create is the ambition of every true artist, and the cinematographer has proven himself to be a true artist. The first pictures were made on the old principle of the hard, cold print, and from these, the cinematographer progressed, until today, he has arrived at a product which, in many cases, equals the beauty captured by the old masters.

In all of his pictures, Lang uses a black and white color treatment. By color treatment, we mean the ability of the artist to give the illusion of many and varying colors when using but black and white. This is done, Lang tells us, by creating an illusion with light. For instance, on a clear day, the sky, to the naked eye, has an unfathomable appearance. If it is this appearance, by the use of filters, that Lang endeavors to capture, when photographing cloud formations. At night, the aspect changes from unfathomable

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# Struss

## Photography

### "Luxurious"

Says

**James L. Fritz**

Formerly Dramatic Editor, St. Louis Post  
Dispatch and New York Daily News

Karl  
Struss,  
ASC



A RECENT review of "Belle of the Nineties" contained the words, "Karl Struss is able to make black and white look more like color than any cameraman now in Hollywood." Struss has his own ideas about color photography and the treatment of color when using black and white. He was one of the pioneers in color experiment, having used it in "Ben Hur," many years ago.

Struss, at present, is one of the "most-in-demand" cinematographers in Hollywood. The reason for this demand for Karl Struss is because of his ability to make a glowing epistle of life and beauty of all the pictures he is called to work on. Struss is undoubtedly a cinematographer who admits no limitations with the camera. He realizes that both the special feats of the machine and its possible perversions are equally manifest. The injection of a glowing quality and the effect of luxuriousness which makes Struss' pictures more than merely a replica of what is transmitted through the lens, illustrates the typical development of the art of cinematography and its students.

Struss attempts to penetrate and capture the unique esthetic moment that singles itself out of the thousands of uncrystallized and insignificant gestures that occur in the course of a day. It is his constant striving toward this impressionism that brings out the characterization of his subjects. Not only do the living subjects benefit by this imaginativeness on the part of the cinematographer, but the settings and backgrounds also take on a richer and more voluptuous aspect. This quality of imaginativeness in Karl Struss is the one underlying quality that has brought him to the fore. His objectification and understanding of the subject he is photographing, are important developments in the progress of a cinematographer.

Struss recognizes, in his camera, an instrument with manifold and conflicting possibilities. It may be used as a passive substitute for experience, or it may be used to concentrate and intensify and express new forms of experience, but it cannot be used as a short cut to escape the necessity of organic experience. Struss points out that just as the microscope is useless unless the eye of the user is trained to its possibilities, so also, does the camera depend for its success upon the cultivation of the organic, physiological and spiritual aptitude of the man that stands behind it.

Struss has several important cinematographic discoveries to his credit, including the generally used Struss lens,

and the "luxe" light. He won the photographic award of the Academy of Motion Picture Arts and Science, with "Sunrise" in 1926. It has been through the untiring efforts and diligent research into the arts of cinematography of men like Karl Struss, that the motion picture became a glowing and beautiful interpretation of the inner realms of fantasy, instead of remaining an indifferent reproductive device, less satisfactory in most cases than the poorest melodramatic legitimate stage production.

The cinematographic success of Struss cannot be laid wholly to his understanding of the machine with which he is working, alone. His imagination must be called upon to clothe his subject in an atmosphere coinciding with its intended characterization. To obtain these effects, camera angles that might appear freakish or affected, are sometimes necessary. Not only must the background be subordinated to the subject, but its relationship to the subject must be made clear and justifiable.

Struss is one of the few cinematographers who have weathered the radical changes and revolutionary introductions of new technicalities into the art of cinematography. He has advanced and kept pace with these introductions since the beginning of motion pictures, until today finds him, in some phases, even advanced in the field of cinematographic research and discovery. It is his theories on the treatment of color to which this reference is made. Struss maintains that the best color photographic effects can be obtained through the use of pastel shades. Art directors and costume designers have been awaiting for some time the already complicated problems of the cinematographer. It is here, Struss points out, that the basic fault with present method of color treatment can be found. The ideal photographic results can be obtained in monochromes, ranging from black to white. These are the only colors that reproduce on the screen. "So why not?" he asks, "begin with the basic tones?" He admits that it is true color photograph to a certain extent, according to their brilliance. That is, a touch of gold or silver will lend flash to a scene, but throwing together of greens, blues and purples, plainly distinguishable to the eye, results in a single color effect on film. This is not only a problematic issue to the cinematographer, but in some cases becomes detrimental to the subject.

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Charles  
Christie

# American Cinematographers Influence World

by

**Charles Christie**

Vice-President, Mitchell Camera Corp.

**Editor's Note:** Charles Christie, vice-president in charge of sales for Mitchell Camera Corporation, recently returned from a trip around the world. He visited studios in both Europe and the Orient. We are pleased to publish his opinion and findings.

**R**ECENTLY the American cameraman not only invaded but practically overran British studios. Great Britain is looking toward world markets.

Central Europe, however, is opposite in its view of the American technician and cameraman. They want nothing of him. Not that they feel they have superior talent, but they want those jobs for their own people.

The Orient would welcome American cameramen with open arms. They would import every one they could induce to come to their country if they could afford to pay the salaries, not only demanded, but the salaries these men are worth to their industry.

Unfortunately, however, I do not believe we will see the day in our time when these oriental studios will be able to put into production, and cinematographic films, the money that will always be available here and in the Central European countries. I say this because the market for the

productions turned out by Japan, India, and other oriental countries is confined to their own borders.

This means small budgets, but not pictures in the sense of our quacks, because India usually takes about 60 days for one feature. When so much time is consumed in the making of a production it is natural that salaries and other overhead expense must be kept down.

It is not unusual for a feature production in both Japan and India to run fourteen reels in length. Often the attending of a picture show is an event that requires a whole day, people take their lunches on many occasions so as to take in the entire program.

The technique of the Orient is especially backward. They do not have the many technical facilities originated here in Hollywood. I did not notice one case of background projection. Any special effects the cinematographer wishes to procure he must do with his camera. They do not have optical printers.

It isn't that they do not have the desire for these things or the need of them, the earning power of their producers will not permit them to invest in luxuries of this nature. It doesn't take much analysis to know that the Japanese pictures will be shown in Japan only, that the pictures in India do not have a great market even in their own country because of the many languages spoken within their own borders. In both countries also theatres are limited.

In the early days of this industry the cinematographic capitals were in Italy, France and Berlin. Today their studios are working at low ebb. Especially Italy the country that gave us "Cabana" and "Qua Vada," the first really great pictures, is practically non-existent as a producing center.

France continues to make pictures for itself and the other countries speaking French, but Germany is rapidly declining. Before a picture can be put into work in that country the script must be read, censored and approved. This does not mean that that picture can be marketed when it is finished. After it is made it is then censored by another department and they may turn it down in spite of the fact that the script was offered to the opinion of the script censor. Money will not take these risks in Germany with the result that some of the producing companies have gone into bankruptcy.

Of course, all eyes are still toward America. The American cinematographer and the American technician, they realize, could give them the foundation necessary to look toward world markets. They know they must have the technicians even before they have the stars and directors, because they dare not present the work of those great names less artistically than they are presented here in America.

All foreign camera men study the work of the American cinematographer very closely. They conscientiously attend every showing of an American picture. They especially follow the work of some of the leading men behind the camera here in the Hollywood studios. However, it is not possible in most instances for them to even attempt to duplicate the work of these men because they do not have the lights, the facilities and accoutrements that will permit them to recreate these conditions even if they know how it is done.

The foreign stars who have come to this country to be photographed and then return again realize the great artist the American cameraman is, realize how important he is to their success. They then thoroughly understand why some of the American stars insist upon certain men photographing all of their productions.

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# Expressing Tempo In Lighting



by

John F. Seitz, A.S.C.

THE relationship between tempo and lighting in Cinematography is difficult to analyze; it undoubtedly exists, yet it is not easy to express it in concrete terms. Tempo is essentially dynamic; lighting is generally static. None the less, there is a fundamental point of contact between the two in that both are means of producing, by visual means, positive psychological responses, and must, as such, be closely coordinated.

Tempo itself may be defined as indicating the degree of swiftness or slowness with which a scene or sequence moves. Further, it may be subdivided into two interdependent categories: physical tempo, and dramatic (or narrative) tempo.

The former obviously refers to the physical pace of the action filmed. Clearly, if action moves at a swift physical pace, it will consume less screen-time; accordingly, the eye of the beholder must react more swiftly, in order to see and to transmit to the brain a clear mental image of the action in the brief time allowed. If this is to be done, the Cinematographer's presentation of the action must be such as to aid this quick visual reaction. The composition should be simple, leading the eye at once to the salient portions of the field of view. The lighting should be incisive and brilliant (though not necessarily of a higher key), in order to facilitate visual perception, and mental comprehension.

In a swift-moving battle sequence, for example, the visual treatment should be such as to reveal the vital points of the action at a glance. Primarily, this would logically be achieved by maintaining the low visual key which the mood of the action demands, but increasing the brilliance, minimizing the diffusion introduced in camera and lighting, and simplifying the visual scale to an easily-read range of positive highlights and shadows, with a minimum of intermediate half-tones.

In a more slowly moving sequence, on the other hand, speed in visual perception is not so necessary. Therefore, the photographic tempo may be slower. A greater degree of visual softness is possible, and the lighting and composition may become more intricate.

Where there is a definite sense of physical movement

to be conveyed, the lighting can do a great deal to enhance this effect. For example, suppose we are to film a scene of a parade, or of an army on the march. Here is a definite instance of forward physical movement, which can be accentuated through lighting. I doubt if any cinematographer would care to light such a scene flatly. No matter whether natural or artificial illumination were used, the natural thing to do would be to strive for a cross-lighting, creating, if possible, parallel stripes of pronounced light and shade across the line of march. The movement of the actors across this light-and-shade pattern, progressing alternately from light to shadow, will heighten the sense of physical movement, and accordingly enhance the tempo.

The same principle is used in the familiar scenes showing players apparently inside a moving automobile at night. Without in any sense detracting from the importance of process backgrounds, which of course lend realism to the scene, it must be admitted that a great part of the sense of movement is imparted by the changing light and shade thrown on the players in simulation of the effects of the street lights as the car passes.

Musical films, of course, offer the greatest opportunity for lighting-tempo. In them, or, rather, in their musical and dance sequences, there is a definite, physical movement, usually strongly rhythmic. Such sequences offer tremendous opportunity for imaginative lighting, which can greatly enhance the sense of rhythmic movement, and in consequence, of tempo.

In this connection, may it not be remarked that our present approach to the problem of staging musical films appears decidedly illogical? The conventional practice is to design and build the sets first, after which the musical people fit their compositions and lyrics to the setting, while, in turn, the Cinematographer (and the Director, too) must attempt to coordinate the two in the filming. To my mind, it would appear to be more logical to have the music and lyrics completed first, after which the settings could be designed to suit the mood and tempo of the song, and the Cinematographer could have a more coherent unity with which to work. The same, in a great measure, applies to dance-scenes, as well.

The matter of dramatic tempo is rather less tangible than physical tempo. It will be recognized that a scene

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# PHOTOGRAPHY

## of the MONTH

### "THE BAND PLAYS ON" (M-G-M)

**Leonard Smith, A.S.C.:** Directing Cinematographer  
Daily Variety (December 17, 1934) "—and fine photography—"

Hollywood Reporter (December 17, 1934) "Leonard Smith's photography is uniformly excellent"

Film Daily (December 22, 1934) "Photography 'Good'"

### "CHARLIE CHAN IN PARIS" (Fox)

**Ernest Palmer, A.S.C.:** Directing Cinematographer  
Hollywood Reporter (December 22, 1934) "—and photography and mounting are first class"

### "LIVES OF A BENIGAL LANCER" (Paramount)

**Charles Long, A.S.C.:** Directing Cinematographer  
Hollywood Reporter (December 26, 1934) "—and the most beautiful photography ever seen in such settings"  
Daily Variety (December 24, 1934) "Photography by Charles Long is a thing of magnificence, especially the scenes in the rocky terrain of the fighting and marching"

Motion Picture Daily (December 26, 1934) "The photography by Charles Long is exceptionally fine"

### "THE GILDED LILY" (Paramount)

**Victor Milner, A.S.C.:** Directing Cinematographer  
Daily Variety (December 24, 1934) "Photography and production are both excellent"

### "THE BEST MAN WINS"

**John Stumar, A.S.C.:** Directing Cinematographer  
Daily Variety (December 27, 1934) "Best thing in the picture is the underwater photography"  
Hollywood Reporter (December 27, 1934) "The diving stuff is all excellently done, both photographically and for suspense"—and the photography, which is swell, is all to Stumar's credit"  
Film Daily (January 2, 1935) "Photography Good"

### "ONLY EIGHT HOURS" (M-G-M)

**Lester White, A.S.C.:** Directing Cinematographer  
Hollywood Reporter (December 31, 1934) "The photography was exquisite—"  
Motion Picture Daily (January 4, 1935) "Lester White photographed well."

### "THE NIGHT IS YOUNG" (M-G-M)

**James Wang Howe, A.S.C.:** Directing Cinematographer  
Motion Picture Daily (December 22, 1934) "James Wang Howe, one of Hollywood's ace cameramen, photographed well"

### "WHITE LIES" (Columbia)

**Benjamin Kline, A.S.C.:** Directing Cinematographer  
Motion Picture Daily (December 22, 1934) "Benjamin Kline's photography is good"  
Film Daily (December 27, 1934) "Photography 'Good'"

### "DAVID COPPERFIELD" (M-G-M)

**Oliver T. Marsh, A.S.C.:** Directing Cinematographer  
Hollywood Reporter (January 7, 1935) "Marsh's camera work was in Marsh's most brilliant manner"  
Daily Variety (January 7, 1935) "Photography of Oliver T. Marsh is exceptionally fine"  
Motion Picture Daily (January 6, 1935) "Good, too, is Oliver Marsh's photography"  
Film Daily (January 8, 1935) "Photography 'A-1'"

### "NOTORIOUS GENTLEMAN" (Universal)

**David Abel, A.S.C.:** Directing Cinematographer  
Daily Variety (January 9, 1935) "Some excellent photography has been turned in by David Abel, particularly the night scenes around the old Southern mansion"  
Hollywood Reporter (January 9, 1935) "Photography by David Abel is above standard"

### "THE WINNING TICKET" (M-G-M)

**Charles Clarke, A.S.C.:** Directing Cinematographer  
Daily Variety (January 9, 1935) "Photography by Charles Clarke is excellent."  
Hollywood Reporter (January 9, 1935) "The photography of Charles Clarke was excellent."

### "WINGS IN THE DARK" (Paramount)

**William C. Mellor, A.S.C.:** Directing Cinematographer  
**Dewey Wingle, Aerial Cinematographer**  
Hollywood Reporter (January 10, 1935) "—and the photography, both aerial and studio, is first rate."  
Daily Variety (January 9, 1935) "Fulfilling the high excellence of the picture is the striking aerial photography by Dewey Wingle and the camera work of William Mellor—"

### "ROCKY MOUNTAIN MYSTERY" (Paramount)

**Archibald Stout, A.S.C.:** Directing Cinematographer  
Daily Variety (January 11, 1935) "Photography of Archibald Stout, as is usual on his outdoor assignments, is excellent"

### "BORDER TOWN" (Warner Bros.)

**Tony Gaudin, A.S.C.:** Directing Cinematographer  
Daily Variety (January 14, 1935) "Photography and production are on the general high plane of the picture"  
Hollywood Reporter (January 14, 1935) "—and Tony Gaudin's photography and the mounting are first rate"

### "OLIVE OF INDIA" (20th Century)

**Feverell Marley, A.S.C.:** Directing Cinematographer  
Hollywood Reporter (January 16, 1935) "Photography by Feverell Marley is beautiful"

### "THE WHOLE TOWN'S TALKING" (Columbia)

**Joseph August, A.S.C.:** Directing Cinematographer  
Hollywood Reporter (January 17, 1935) "—and the photography by Joseph August excellent, with the double exposure shots very well done"  
Daily Variety (January 17, 1935) "Camera work of Joseph August deserves a palm, particularly the trick split film stuff necessary for the dual photography"

# Variety Names Ten Best Cinematographers

(Continued from Page 50)

long period of time. Joe August was tabbed as chief cinematographer for Bill Hart, cranking on most of his westerns. John Seitz was attached to all of the Rex Ingram pictures for seven years and then handled the camera for Conna Griffith, who had a clause in her contract to that effect.

John Arnold, now head of the Metro camera department, photographed all of the Viola Dana features for the old Metro company and was also in charge of the camera crew on the King Vidor productions at Metro up to the time he took charge of the department. James Brown, Jr., has been photographer on all of the Larry Darmour pictures for several years—and doubles in brass as unit production manager. Frank Good photographed all but two of the Jackie Coogan features produced by Sol Lesser and is now back with the latter as head cameraman.

Len Powers, who was with Hal Roach for around 12 years, photographed practically all of the Warren Doane shorts for Universal up to a few months ago.

Clyde DeVinna was the camera globe-trotting companion with W. S. Van Dyke when the latter made pictures for Metro in the South Seas, Africa, and the Arctic. DeVinna is a crutch to swing back with Van Dyke when, and if, the latter takes any other expeditionary jaunts.

Roy Renahan is rated the outstanding color photographer in the business today. He has been with Technicolor for years, was an expert on the old two-color process and is now tops in shooting the new three-way development.

Leon Stommey, under personal contract to B. P. Schulberg, has been doing all of the Sylvia Sydney productions for the past two years, while John Muscell made a tie-up with James Whale, at Universal, to shoot his pictures exclusively about a year ago. George Barnes, under Warner contract, naturally does the camera assignment on all pictures where his wife, Joan Blondell, holds a featured spot. And you can imagine if Barnes doesn't help make his bride look okay.

## Salaries

There has been a general increase in salaries to first grade cameramen during the past year. Top weekly paychecks are now about \$550 to \$600, either on contract or on a free lance basis. Despite there are about 130 first cameramen listed for production on the Coast, studios occasionally find it hard to select grade A men for available jobs when a production peak exists. Undoubtedly there are a number of capable first men

who would click if given a chance on a major hit, but they are generally passed up because camera department heads, producers, directors or players refuse to take chances with them.

As a whole, the Metro and Paramount camera departments are deemed to have the best rounded out camera crews from fists down through seconds, assistants and still men. It is worth pointing out that these are the only two studios which have experienced cameramen as heads of their respective camera departments.

John Arnold, at Metro, is a pioneer cameraman having started in the business prior to 1910. Virgil Miller, at Fox, was a first man for many years and the background of practical experience is invaluable to companies when camera organizations are being maintained at top efficiency. Outstanding first men are naturally valuable on a camera department roster, but they must depend on their crews to a great extent to get the desired results.

## Few From Europe

Only three European cameramen have come over here to make the grade during the past eight years—Karl Freund (now directing for Universal), Theodore Siskuhl, and Rudy Mote. In comparison, American cinematographers have gone to Europe to become out-

standing. Glenn McWilliams is with Gaumont-British as chief cinematographer and those on the other side doing well are Charles Van Enger, Phil Tomaro, Lloyd Knechtel, Osmund Bonadale and Harry Stradling. Charles Rosher and Charles Stumar both made a number of pictures for Ufa in Germany a few years ago. When Stumar returned from abroad he stated that cameramen over there were advertised on theatre marquees above the director of a picture.

## Watching Van Sternberg

The cameramen out here are keenly watching the progress of Jaarl van Sternberg in acting as both director and head cameraman on Marlene Dietrich's "Copies Espagnole" at Paramount. Van Sternberg has always been noted for his lighting and camera angles, and assumed charge of the camera crew on this picture when he was unsuccessful in moving up a favorite assistant too fast. When the cameraman's organization refused to allow the man to handle a first job without more experience, the director decided to take over the responsibility. The outcome holds the cameramen in that on all previous pictures on the Paramount list Van Sternberg has had an ace photographer assigned to work with him.

The accompanying lists of best cameramen is "Variety's" selection based on 34 performances and executive studio opinions.

# Lang's Photography Has Vitality Says Critic

(Continued from Page 51)

clearness, to the dark blackness of the pit. He also tells us that he studies his subject deeply, until he obtains the feel of it. He is then able to deal with the subject, not as if he were merely taking a picture, but as if he were writing a poem with lights and shadows. He never allows anything to melt. He uses contrasts to catch the true meaning of the story.

An example of this, is, that when photographing a mystery picture, he looks to the surreal perspective. He tries to leave the background dark at all times, to create the illusion that something or someone is lurking unseen in the shadows. On the other hand, when taking action shots, for which he is best noted, he reverses the process, lighting the background brilliantly, so as to bring out the subject clear and precise. The romantic picture receives still another treatment. Here, by camera diffusion, he obtains a softness of line, but a brilliance of subject.

One could go on indefinitely discussing on the many methods that various cinematographers use in obtaining their

best shots, and one could not give an absolute formula to follow in mastering the art of cinematography, in which everything is tangible and anything is possible.

## American Cinematographers Influence World

(Continued from Page 51)

England of course is progressing rapidly in American technique and when one visits the studios over there, in practically every one of them, you will find cinematographers and technicians whom you have seen many times in the American studios.

England has taken to optical printing, it has background projection installed and introduced by American technicians. England, however realizes that one big picture does not create a world market, it now knows that all of its production must be up to the American average, so possibly we may see a greater exodus of American talent toward the British isles.



# *In eight of* “1934’s BEST TEN”

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OF the ten pictures chosen as 1934’s best in the *Film Daily’s* nationwide poll, eight were photographed on Eastman Super-Sensitive Panchromatic Negative. Again this Eastman film has made its contribution to the artistry and entertainment value of the productions adjudged the finest of the year. Eastman Kodak Company, Rochester, N.Y. (J. E. Brulatour, Inc., Distributors, New York, Chicago, Hollywood.)

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EASTMAN *Super-Sensitive*  
*Panchromatic Negative*

## Cinematographer Plays Leading Part in Group of Creative Minds

(Continued from Page 49)

The paradox was, that potentially and cinematically, the speed of the talkie far surpassed that of the silent pantomimic film; but that, within the sequence, the physical movement and actual time-elapsed speed of the talkie was slower. That is, the cinematic movement of the talkie, in the psychological sense of stimuli for mental and emotional progression within the perceptive, contained intrinsically more elements of concurrent and inter-accelerating tempo than the silent picture of alternate action and title, while the silent picture employed all possible fast physical and pantomimic movement and rapid cutting to attain the utmost pace of cinematic movement in a relatively slow-tempo medium.

Consequently, in the first years of sound pictures it was well-nigh impossible to take full advantage of the talkies' potential tempo with what amounted to photographed stage plays; for, the lack of interpretive camera flow, in conjunction with a serious unbalance of dialogue (or song) over action, precluded cinematic movement from attaining a possible one hundred percent, and slowed it to an average of less than fifty. There were, of course, notable exceptions to the prevalent snail's pace of the early talkies, "Interference" being one of these.

Thus it was seen that a new manner of "actional-talking story" must come if the audible motion picture was to realize the power, worth and richness of its natural endowments—a happy combination of action, gesture and facial expression, interacting with word, sound or song to achieve the ultimate in dual-progression, fast-paced, fully effective cinematic movement.

This question of tempo was but one of the more important creative problems facing the producer, author, director and cinematographer in the early years of sound pictures (and which remains to this day only partially solved, as attested for example, by the improving use of montage and time-lapse sequences), whose eventual solution required the closer integration of these

key men if the screen were to progress.

And so each new problem or development as it presents itself, brings the undeniable need for a progressively closer cooperation amongst the creative minds of the motion picture. Just as sound for the last five years has caused a sure integration of literary and dramatic content through words, sound or song, with literary and dramatic content through pictures of action and things—the general use of natural color will in the future necessitate the further integration of the "outward appearance" of characters and things, with the cinematic (dramatic—psychological) expression of these same characters and things.

The motion picture will always remain a quasi-communal expression, due to its complex aesthetic and physical nature. The tendencies, individual bias and interests, organic as they are, of its vari-

ous creative workers must be intellectually harmonized to the communal purpose, that is, there must be a fuller understanding of each other's problems, and a larger concept by the individual of the collective aim, so that the form and material of the motion picture will more completely fuse with the subject matter in reaching its zenith of expressiveness, and in becoming increasingly mature and incisively accurate in its comment on and interaction with life.

When that maturity of concept and execution comes, it will be found that all four of the chief creative elements are on an integral par, welded together by a group understanding and sympathy almost beyond today's most sanguine hopes.

Thus must the Director of Photography play a leading part in the group of key creative minds, for his contribution in the making of a motion picture is so generically of its form and matter. Whether he wishes to or not, he is slowly but certainly being compelled to assume that, his own responsibility—and opportunity.

## Let's Stop Abusing Camera Movement

(Continued from Page 47)

makes the picture easy and pleasing to look at.

"Thirdly, there is an appalling lack of understanding on the part of most directors of what makes a really good moving-camera scene. Nine out of ten directors will shoot an involved travelling shot—and then 'protect' themselves by re-shooting the action in individual close-ups and long-shots. Then he 'shows off' to the Front-Office in the projection-room where the dailies are run, pointing to his moving-camera technique as evidence of his ability as a director. But when the final cut of the picture is made, it is usually those conventional 'protection-shots' that are used—while the dolly-shots go into the ash-can! If studio officials would investigate this, checking these wasted, unused dolly-shots against the time, effort and money wasted in making them, there would be fewer so-called clever directors (or rather, they'd find out who were the really clever ones!) and pictures would be made better and more efficiently."

Charles Lang, A.S.C., points out that "It is necessary to consider the style of the director before saying much about any individual moving-shot. Some directors make an amazing number of difficult dolly-shots, yet they fit so perfectly with the director's style that they can hardly be condemned. Other directors use the moving camera haphazardly, either covering up with protection-shots, or forcing the use of dolly-shots as the wrong place, both of which are bad. In general, if a director's inherent style is predicated upon the use of the moving camera, and he uses it intelligently, no Cinematographer will complain; but we should all strive to educate the men who do not understand the proper use of perambulating, and show them how indiscriminate dollying wastes time, money and footage, and hurts, rather than helps, their pictures."

The opinion of George J. Folsey, A.S.C., was equally constructive. He said that "Ruling out the out-and-out abuses of the moving-camera technique by inept directors, a properly employed moving-shot can be very good dramatically—though they are almost always difficult photographically. The key to the problem is cooperation: the Cinematographer should school himself to a quicker perception of dramatic values, and the director should try to develop an appreciation of cinematographic problems. Both should make themselves absolutely sure that a perambulating shot is necessary from a dramatic viewpoint, and not undesirable from a pho-

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

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This chart suggests some of the ways in which outstanding cinematographers are putting a few of the many  Mazda lamps to work for them. In the face of this proven feasibility, is it any wonder that studios from coast to coast use  Mazda lamps for all lighting needs? Incandescent Lamp Dept., General Electric Co., Nela Park, Cleveland, Ohio.

## GENERAL ELECTRIC

ographic viewpoint, before allowing it to be filmed."

Frank B. Good, A.S.C., speaks, as usual, in a very practical way about the problem. "The only excuse for a mov-

ing-camera shot is a story situation that can't be conveyed in any other way. The director and the Cinematographer should study a script carefully before starting production, checking and re-checking

to make absolutely sure that no moving-shot is used unless it is positively vital. Then they should prepare the mechanics of the shot perfectly. The situation should be such that once filmed, the moving-shot is dramatically and technically perfect, with no need for protection-shots of any kind. If you really need the protection-shots, you don't really need the moving-shots, and if the moving-shot is really essential, you haven't any need for protection-shots."

Sooner or later, the problem of the abuse of moving-camera technique must be faced. At present, we are unquestionably wasting time, money and effort on an excess of these shots which do not help their productions at all, and which harm photography and waste valuable footage. When will directors and Cinematographers really join hands and make a united effort to curb this extravagant abuse of a valuable technical and dramatic technique?

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## Struss Photography "Luxurious"

(Continued from Page 52)

It is perhaps due to the fact that Struss has allowed his mind to dwell and dream upon these theories, that subconsciously, he has been able to grasp the true esthetic arrangements of the subject before him. He does, in no instance, allow the cruder environment to show through, but tries to clothe it with a luxurious aspect that is comparable to the visions of Picasso, or the mythologies of Hindum.

Struss came to Hollywood more than fourteen years ago, and has photographed almost every noted star. When he was a portrait photographer in New York, he obtained the idea, from early motion pictures, that the cinematographers of that day really knew but very little of artistic photography. He came west with the determination to make a life study of the art of cinematography. Shortly after his arrival, he obtained a position with Cecil B. De Mille as a still man. Not long after, he was given his first opportunity to prove his ability with the motion picture camera. His progress from that day has been pronounced, until he has become one of the industry's outstanding figures.

## Expressing Tempo in Lighting

(Continued from Page 54)

or sequence may strike a dramatic pace more or less independent of the physical pace of its component movements. It is possible to conceive of a scene in which very little physical action occurs, yet which advances the story at break-neck speed—or of one in which a maximum of physical movement produces the minimum of dramatic advancement. In such cases, it is often well to assume



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the photography and lighting more to the dramatic tempo than to the physical.

This borders very closely upon the subject of mood, though it is by no means an exact parallel. As a general rule, the more somber dramatic moods connote action which is slow in tempo, while the lighter moods evidence a brisker tempo. In much the same way, action which is slow in its dramatic tempo is often best treated with somber, low-key lightings, while a more exuberant tempo is better served by brighter, more highly keyed lighting. Melodrama and broad comedy, both of which are dramatically exaggerated, and maintain an exaggerated dramatic as well as physical tempo, require more or less exaggeration in lighting. Screen melodrama, for example, almost always calls for more or less unnatural light-effects, usually with a definite suppression of the middle range of tonal gradations. Broad comedy frequently impels a reversal of this: exaggeratedly natural lightings (if it can be so described), with a minimum of extreme contrasts and a fairly wide range of intermediate tones.

In general, then, it may be concluded that purely physical tempo in lighting is most frequently expressed through alteration of the visual key of lighting, and by manipulation of the brilliance of

the lighting, while the more delicate dramatic tempo is, like mood, revealed more generally through manipulation of the gradational scale, tending to lower tones, with repressed highlights for the slower tempis, and to wider scales for the lighter tempis.

Neither mood nor tempo in lighting should be achieved at the expense of the visual coherence of the production as a whole. From the dramatic viewpoint, no individual scene can be considered as independent of the production, no more should any scene be considered as being unrelated to the photographic coherence of the complete production. Therefore, in normal practice we must sometimes sacrifice effects in lighting and composition which would, individually, be effective contributions to

visual mood or tempo, but which, viewed in their relation to the greater unity of the production, may prove undesirable.

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In the same way, it is often necessary to forego effects which would be visually or dramatically potent, in order to maintain some special type of lighting or other treatment needed for the most favorable presentation of some star. In general, however, lighting may not only be closely attuned to the physical and

dramatic tempo of a film, but serve as a powerful aid to direction and acting in creating and maintaining tempo. Admittedly, this phase of lighting is not so well comprehended as one lighting for mood and character, but it is one which affords much interest to the analytically minded artist.

## New Fried Camera for Columbia

The latest in soundproofed cameras weighs less than 90 lbs., loaded and ready for work, and can be carried by one man. It retains the four-lens turret and all operating controls of the Mitchell camera, but due to a patented focusing system which eliminates the "throw-over," the entire unit is scarcely larger than an unblimped camera. As the turret is completely removed from all metallic contact with the camera-movement, no glass window is necessary, so that the bugaboo of "shooting through glass" is eliminated.

The new device is the first "Reconstruction-Silenced" Mitchell camera, just put into use at the Columbia Studio. The "Reconstruction-Silencing" method, developed by Armin Fried, was discussed in its earlier application to Bell and Howell cameras in the September, 1933 issue of this magazine; the present design, however, has been considerably modified in adapting it to the Mitchell camera, and also incorporates a number of practical improvements suggested by Emil Oster, head of the Columbia Camera Department.

A standard Mitchell camera-box and movement is used, the base-plate and front of the original head being removed. This is placed in a small, lightweight soundproofing case, approximately three inches larger overall than the inner camera-box. All operating controls—shutter adjustment, fade-in and fade-out buttons, etc.—are extended to the outside of this case, and operate in the usual manner.

The regular Mitchell turret is retained, and is placed on a special lens-board at the front of the outer case. This lens-board moves in and out along the optical axis of the lens, thereby eliminating any need to revolve the lenses in focusing. This action is controlled by a knob on

the back of the outer case, and by a supplementary knob, also outside the case, just below the finder. On the shaft of the latter control are five drums, along the edges of which are color-brokers for focusing the various lenses; these are enclosed and indirectly illuminated, while sliding shield-sectors block out all scales except the one in use. A disc and pointer of the conventional type, located by this knob-control, provide for emergency color-brokers. To focus, a lever at the rear of the case, similar to the regular Mitchell "throw-over" lever, is turned; this slides the lens-board forward approximately  $\frac{1}{8}$  in., and inserts a reflecting prism, which diverts the image through a focusing system similar to the regular Mitchell one, but mounted on the inside of the "blimp" door. Since the "throw-over" movement is eliminated, the soundproofing case can be made much smaller and lighter than would otherwise be possible.

Any type of camera-motor may be used, as the cover of the right-hand side of the housing is removable. Normally, a standard ERPI motor is used, covered by a plate conforming to its shape. By removing four bolts, this plate may be removed, and any other motor substituted and, if necessary, soundproofed by the use of another cover-plate.

In this design, the movement and its original casing are entirely separate from all other units of the "blimp." The lower part of the "blimp," which contains the focus-actuating mechanism, is also acoustically isolated from both movement and "blimp," while the magazines are attached directly to the top of the "blimp" itself and, if necessary, covered with a separate soundproof housing, which opens wide enough so that magazines may be changed more easily than in most "blimps."

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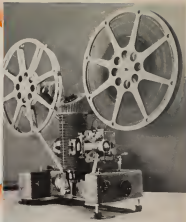
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February, 1935

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## this issue

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# AMATEUR MOVIE SECTION

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## Next Month . . .

- Wm. J. Grace will start a new series of articles discussing the practical side of amateur picture-making.
- There will be several other articles from professionals, and some from amateurs who have observed as they shoot. They will tell you of their experiments and experiences.

# Miniature Shots for Your Home Movie

by  
**Ray Fernstrom, A.S.C.**



The train in this photo is only a little taller than a Swedish match box stood on end.

**A** FEW years ago, while making some travel-films in Sweden, I took my camera into the Railroad Museum of the Swedish State Railways and made some shots of a wonderful miniature electric railroad which is exhibited there. The train—a perfect model of the regular Swedish expresses—was just about half the size of the little "O" gauge toy trains your little boy got for Christmas, but on the screen it was hard to tell whether I had photographed a miniature or a real train. I was using a professional 35mm camera—but the result would have been the same with 16mm or 8mm film in amateur equipment. And doesn't it start you off on an idea you could apply to your home-movie making?

Of course, most of us can't command the elaborate scenery and accessories that helped to make this shot so effective—but even without them, surprisingly good miniature-shots can be made with ordinary home-movie equipment, and the sort of "miniatures" that are to be had anywhere. Of course, if you have a friend who rides the hobby of making model trains, boats or airplanes you are well ahead of the game. (Did you know that some of our most distinguished, white-whiskered bankers and business-men make train models and play with toy trains as enthusiastically as any boy?) But even without these, you can do a lot with the ordinary, commercial toys.

Many of the better grade, electric toy trains—especially the smaller "O" gauge—will do excellently for miniature-shots. Some of the toy reproductions of the new streamline train are marvelously suited to movies. Since most electric trains use a three-rail track, you will get the best results if you use a low camera-angle, which will conceal the third rail. Similarly, your best bet is to make either straight side shots, or to shoot from a 45° angle, with the train coming diagonally across the picture, toward the camera. If you must have a shot of a train coming straight into the camera, make it at a curve, with the train coming in behind down a straight stretch, and curving off just as it fills the screen. This, you see, will allow you to use a lower camera position than otherwise, again concealing that bothersome third rail. For the same reason, you'll find it most convenient to put your train on a bench or table, well off the floor, this, too, will help in getting your camera low enough.

Don't try to use the cheap, clockwork trains, or the cheapest electric varieties, for they aren't, as a rule, made with sufficient attention to scale and detail to be realistic. Another thing, too, many of the better electric trains have a remote-control arrangement, so that you can have them stop, start, or reverse in your shot as you may desire. Also, if possible, get trains that carry little lights inside, and make your shots night-effect scenes. This will help conceal the shortcomings as to backgrounds, etc., and prove much more effective. In making night-effects on reversal film, you'll have to underexpose a good deal, and it will help you if you tell the laboratory people that you are shooting for night effects, and ask them please to refrain from boosting the print up for a day effect.

Keep these shots as simple as possible, using just as few accessories as you can. Many of the signals, stations, and the like are not made exactly to scale, and would show up badly on the screen.

Most professional miniature shots are made in slow-motion, often with the camera exposing more than 128 frames per second, for slow-motion smooths out the movement of the miniature, and lends an effect of size to the picture. No amateur camera will go this fast—and even if they did, there would be a considerable problem in lighting the shots with amateur lighting equipment. So the next-best thing is to run the train a bit slowly (as slow as it will go smoothly), and, if possible, shoot at 24-frame speed—faster, if you can manage the lighting. In some instances you might make these shots outdoors, getting the night effect with a red filter and underexposure.

When it comes to boats and airplanes, the problem is a little bit more complicated. The ordinary toy craft won't do at all, for they aren't nearly so close to scale, and they'll naturally look "toyish" on the screen. But there are lots

(Continued on Page 54)



Extraneous made from Mr. Clardy's own prize-winning picture for 1954.

## Filming an 8mm Prize Winner

by  
**Randolph B. Clardy**

**Editor's Note:** Randolph B. Clardy won the Grand Prize in the American Cinematographer Amateur Movie Contest for 1954. He also won the Scripps prize. In 1953 he won the scenario prize and the prize for photography. On both occasions he used an 8mm camera. For this reason we believe Mr. Clardy's story will be interesting to thousands of readers.

**F**OUR scenarios were written completely before the final story was prepared. As a hint to the wise—the first three were more complex as to situations and characters, while "New Horizon" was as simple as it could be made with only three characters—and it was a handful at that for a lone cameraman directing his own.

"New Horizon" is the story of an American farm girl in love with the son of a neighboring farmer. Her father, crippled and unable to help with the work of the farm, bitterly objects to the girl's marriage. His dominating personality keeps her tied to the farm doing heavy work that should be a man's job. The scenes follow the girl

through her early morning outdoor chores and after breakfast she stops to rest on the porch where she tells her father again of her wish to marry. The father in a violent rage declares she shall never marry the boy. Physically and mentally weighted down, the girl, while working in the hayfield, meets the boy only to part once more with the situation seemingly hopeless. That afternoon when the girl arrives at the house she sees her father struck down by a horse which he is brutally tormenting, and realizing he is dead, the girl, with tears streaming down her face, runs across the fields and over the hill separating the two farms, to the boy she loves—disappearing into the "New Horizon" of her life. The reel starts with a man taking a book from a shelf at the fireside, in which appear the titles and cost, lap-dissolving from the first page of the story into the opening scene of the farm. At the close of the picture, the final scene of the girl on the hill dissolves back into the book with a fade-out as the man replaces the book on the mantel.

Here's what may be considered an important suggestion to those writing original scenarios for production. converse with someone (if they can take it) and tell them your thoughts. Your own ideas will be stimulated as well as those of the person you are conversing with. In "New Horizon" I started with the girl and her father (having these characters available) and was stumped for an idea for the boy. Here during a discussion, my wife suggested that he be a neighboring boy in love with the girl—and so he was. That suggestion completed the skeleton of the story and the details were then filled in.

Inasmuch as "New Horizon" was based on the life of an American farm girl, it is an interesting paradox that Miss Leslie Clarke, who played the part, was a very typical Canadian girl visiting in California from Toronto, Canada—and with the Editor's consent I should like to give credit here to Miss Clarke for her exceptional cooperation and able interpretation of the leading character in the story.

Due to the dramatic theme of the story, practically all of the scenes were kept in a low key. A "G" filter was used on the exterior scenes and tests were made to get the correct low exposure. Three lap-dissolves were used and obtained by fading out, timing the shots and running through the camera twice to double expose the laps. A Harrison sun-shade and their graduated neutral density fading glass made the fades possible. Their regular professional diffusion disks were used on all scenes, a number three for distance and a number four for close-ups. The "G" filter helped restore the contrast usually lacking with diffusion. The characters used a heavy shade of studio make-up to offset the effect of the "G" filter. My Model 60 F.1.9 Cine 8 Camera was used almost entirely on a homemade platform placed on the ground, so Miss Clarke was small and low camera angles made her appear taller. This also gave an opportunity for unusual angles and, where on undesirable background was in evidence, the plain blue sky was used instead. A number of silver covered reflectors were used, supported by uplights, so that the light source would be from a higher and more pleasing angle. These made it possible to use back lighting and to light up the background details where needed.

All rehearsing was done on location before the camera, and a second shot was made if necessary. I tried to forget film footage and shot with more freedom. Only four speaking titles were used.

I could have hoped for no greater honor than to have won for a second time the A.S.C. International Contest, as I feel this is the highest compliment an amateur can receive—to say nothing of the cash award.

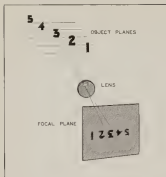


Fig. 10. Depth of focus or depth of field—at all means "how much is in sharp focus."

SHOULD you read or hear somewhere that "There is no such thing as 'distortion' in this day of perfected lenses," you might catalog the author of that statement either as one who isn't thoroughly versed in his subject or that he makes an unfortunate choice of phraseology. Either he doesn't know what he is talking about, or he hasn't convincingly qualified his statement.

"Distortion," so the dictionary tells us, is derived from two Latin words, "*dis*" (away) and "*tortus*" (to twist), and means "to twist or turn or pervert from the natural form or shape." Its use in cine work is by no means restricted to faults of lenses as they are designed or made—it may just as well be applied to the manner of using the lenses. After all, an image can just as easily be distorted by improper application of the lens as by a poor lens itself. If the image isn't exactly similar to the original scene, then it is distorted.

It is difficult, in a measure of words and two-dimensional illustrations, to drive home in a simple and convincing manner the truths underlying many things, and optical facts are no exception. However, suppose we make at least a try at drawing aside one or two of the many veils of misunderstanding which are draped about optical phenomena as regards "distortion."

More as a reminder than as a statement which we agree to be true, let's recall the fact that "it is impossible to reproduce a three-dimensional object on a two-dimensional surface in such a way as to entirely satisfy the binocular vision of the normal human being." This assumes, of course, a camera of the single lens type, not a stereo camera.

If all observers had but one eye, more nearly perfect reproduction would be possible, for the feeling of perspective or spatial relationship of each object plane could be attained by using a lens stop giving approximately the same depth of focus as the eye would have under the same conditions. In other words, when we look at an object with one eye, other objects before and behind the principal object are out of focus in proportion to their distances from the plane of the principal object, and if the lens stop which will produce this same blurring of objects other than the

## Let's Talk

principal object is used, very nearly perfect reproduction for a one-eyed observer can be approached.

If you remember, it was this very thought of using a lens fairly wide open to secure shallow depth of focus for pseudo-depth effect which I mentioned in the August CINETRUCKS. Even the most of our audiences are in possession of sight in both eyes, the illusion of depth thus gained simulates perspective quality.

Perhaps you've become just a bit weary of hearing the term "depth of focus" so many times, in almost every cine article your eye scans, but just to close the incident for the time being, let's glance at figure 10. Depth of focus is that axial distance in which objects are imaged sufficiently sharp in focus. Depth of field is the axial distance (out in front) between which all objects appear sufficiently sharp. The two terms are confusing—there should be but one in use, possibly "depth of focus." Altho depth of focus refers to the axial "sharp enough" distance at the film and depth of field the axial "sharp enough" distance out in the object space, it all amounts to the same thing—how much of the object space will be in "sharp enough" focus on the film.

In figure 10 the object 1 is sharply focused on the film. If 2 and 4 are sufficiently sharp, then you'd say the depth of field is between planes 2 and 4. The term "sufficiently sharp" cannot be quantitatively defined, it will depend entirely on your own ideas of sharpness.

Now for an aspect of cine work (or still work, for that matter) which is seldom discussed—perspective. I say "seldom," for I of course haven't read everything, but personally I have never seen it discussed. Perhaps you have, and if you've seen the matter discussed in articles you're one up on me. It's something I've felt rather than known ever since I made my first 3" telephoto shot, and I've finally run across an explanation of the effect so simple that it's astounding.

Put your finger on the beginning of this paragraph and let your eyes wander to figure 11. Study the illustration a bit, then read on. Suppose that instead of placing the lens where it is shown, we place our eye at the location. Also suppose that we replace for a moment the film or photo with a plate of clear glass. Keeping our eye steady in position we will sketch on the glass an "image" of the object.

Now suppose we put things back as they were, the lens and photo as shown (only the photo would of course be placed on the other side of the lens) and snap a picture. The image recorded on the photo would be identical with the image we sketched on the glass plate.

If, however, we had sketched the image with our eye placed as in figure 11 and had taken a photo of the same object with the lens as it is shown placed in the figure 11 illustration, the two images would no longer be identical. The photographed image would show the object as in "image by lens" and that sketched would appear as in "image as seen by eye." Obviously, distortion has crept in, for the two images aren't identical.

If we had viewed the photograph with our eye at the same distance from the photo as the lens was when it took

# About Lenses

## Projection and Apparent Perspective Distortion

by  
**Wm. J. Grace**

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the picture, there would have been no distortion, would there? Or, if the picture had been made with the lens at the distance from the film that the eye would view the print, there would still be no distortion—right?

It appears, then, that the only way a picture may be viewed to secure the same perspective is to place the eye at a distance such that the picture subtends the same angle at the eye as the negative film did at the lens. It isn't necessary that the eye be placed at the same position as the lens was when the picture was made if the same angle is subtended. For instance, if we take a still picture  $3\frac{1}{2}$ " wide with a 5" focal length lens, true perspective is apparent only when we view the print at 5 inches or enlarge the picture to  $6\frac{1}{2}$ " wide and view it at the normal reading distance of 10".

The same thing is true in viewing motion pictures. You've noticed, if you are observant, that in 16mm work the 1" lens is regarded as the "normal" lens for the cam-

era, but that projectors almost invariably use a 2" lens. Do you know why this is done? Because in home projection (as well as in the theatre) the center of the audience is about halfway between projector and screen, and by using a 2" projection lens the screen at the eye of the audience subtends approximately the same angle as the 1" lens did when it took the picture.

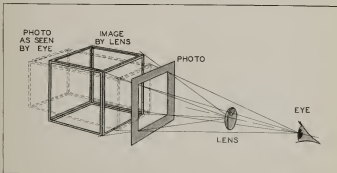
Granted, then, that we should sit halfway between projector and screen and use a 2" lens on the projector for true perspective viewing of shots made with the 1" camera lens, what's going to happen to the perspective when a telephoto shot or a wide-angle shot appears on the screen? The perspective is going to be distorted. Haven't you noticed scenes in which some person or object coming toward the camera appeared to merely go thru the motions of approaching without getting much bigger in size? Those were telephoto shots, of course, and because you weren't viewing them at the right distance, the scene was unnatural. The opposite effect is noticeable with wide-angle shots—two or three steps of an approaching person bring him toward you unbelievably quickly.

Why put up with such distortion in your work? Well, for one thing, it's often impossible to approach an object close enough to get a large enough picture, so a telephoto lens is slipped on the camera. Conversely, when operating in cramped quarters we can't back off enough to include enough area, so the wide angle lens goes into action. If somehow a camera angle can be so selected that moving objects do not approach or withdraw from the camera, the distortion of perspective isn't so noticeable.

Then there are times and places where the clever cinematographer deliberately employs the distortion of perspective for reasons of composition or even for comedy. With a telephoto of proper focal length, a background suitable for the subject but too distant for good composition can literally be brought up to the subject. The size of the subject, of course, is kept to the desired proportions by his position distance from the camera. For example, a mountain background might appear too small with the normal lens, but if the subject is backed up to a distance in proportion to the lens focal length, the background may be enlarged and yet the subject size remain the same. In

(Continued on Page 83)

Fig. 11 Viewing a picture at a different installed angle than the taking angle introduces distortion of perspective.





At top—Leica photo made by Oskar Barnack, the inventor of that camera, in 1914. Below is a reproduction of the first two cameras made by Mr. Barnack. The above photo was made with one of these cameras.

**T**HIS year marks the twenty-first birthday of the brain-child of Oskar Barnack. Today, after its periods of growing pains, education, and sowing a few wild exposures, it is a fully grown camera, ready to shoulder its share of the serious problems encountered in the world of photography.

Like a proud father, Oskar Barnack has been content to remain unobtrusively in the background, while the world has acclaimed his prodigy. From this reticence, he has emerged only to add some improvement or accessory that will further increase the many-fold accomplishments of his camera.

Although Oskar Barnack is comparatively unknown, the influence that he has had upon the trend of modern photography has been phenomenal. Since the inception of photography, only two other individuals have so influenced the general trend of this art, and they have been L. J. M. M. Daguerre and George Eastman.

Daguerre, with the Daguerreotype, gave the world its first popular form of photography and Eastman, with the Kodak and "You press the button—we do the rest," made potential cameramen of everyone. Now with the great concentration that is being made upon miniature photography, it is time that we should know more of this man, who with his little Leica made the snap "what that was heard around the world."

The life of Oskar Barnack has been very interesting. Like so many other biographies of famous men, this one should really start off by saying that Herr Barnack was born amid humble circumstances. However, I do not find this fact in any of the information that I have received from Germany. This information does, however, emphasize a typical German trait for when young Barnack expressed the desire to become a landscape painter, his father said to him, "You had better learn a decent handicraft." So little Barnack went to Berlin and became an apprentice in the mechanical workshop of Julius Lampe. This was but a small workshop with but only one journeyman and one apprentice, Barnack now became the second one.

Herr Lampe specialized in the manufacture of little astronomical devices which were driven by clockworks and which displayed in a clever manner the sun, the moon, the stars, and the planets which rotated, ascended or descended

## The Leica

on an artificial sky. Numerous tables and figures accompanied these instruments, recording all of the details just as they were happening in reality, in the course of comet events.

So impressed was he by all of this, little Barnack lost all desire to become a landscape painter. His goal now was that of an astronomer. He applied himself so diligently, in performing his tasks, that Herr Lampe finally reduced his apprenticeship by six months, maintaining that he had finished learning and advising him to go out and see the world and to make good use of his knowledge.

During his wanderings, the journeyman Barnack found a new occupation in a little town in Saxony. His new employer manufactured calculating and adding machines. Never before in his life had Barnack seen such a calculating machine, for even at that time, it was able to do addition, subtraction, multiplication, and division. One of his early tasks was to take one of these machines apart in order to give it a thorough overhauling and cleaning. His new boss proposed to give him a helping hand when it came to reassembling it, for there was such a maze of wheels, gears and screws which had to be put together. However, by the time that his boss returned, the machine stood there completely reassembled. Not only was it complete in its outer appearance, but it rattled down divisions, additions, etc., as reliably as before. Barnack's new employer was certainly taken by surprise and the young man was rewarded accordingly. This knack of being able to solve intricate mechanical problems was to come in very handy for him, during the many hard years that followed, in the mechanical-optical industry.

About this time, Barnack, of a passionate nature-lover, roamed about the beautiful Thuringian country, in search of picturesque spots to photograph. Everyone knows what it is, to carry around a heavy 13x18cm camera, with a tripod and six double plate-holders. Surely, thought Barnack, there must be a lighter and more convenient way for making pictures. Accordingly, he got busy and devised a contraption that would enable him to make a dozen or more pictures on one plate. However, in his attempt to enlarge these, he met many obstacles as the grain was flourishing lavishly. His experiments gradually became a thing of the past, yet they were the first spark which in other years started to glow, anew.

It was in 1911 when Oskar Barnack came to the Leitz Works, in Weitzlar, Germany. He was assigned to the microscope department of the organization and he fully succeeded in solving the most intricate construction work that was given to him. About this time, cinematography, which was then very young, attracted Barnack's fancy. So as a side line Barnack tried to build motion picture cameras. As there were already a number of foreign patents in existence, he constructed his first experimental model of aluminum instead of wood, as were those that were already on the market. He took his first movie film, which char-



# Comes of Age--- An Autobiography

by  
C. W. D. Siler, A.S.C.

wards became well known as "Leitz-Film." His desire to become an astronomer, had long since been forgotten. His new ambition was to become a cinematographer.

Of course, everything was new to him, even the correct exposure to give his motion picture films. He had to pay for his experiments and vary highly at that, for it is a very expensive matter to shoot 200 feet of negative and then later discover, that it had been partly "over" or "under" exposed. Consequently, nothing was more important to him than to create a reliable exposure-meter. He foresaw the value of being able to take and to develop a number of small pictures, made at different lens stops. From this step he could ascertain the correct exposure for his motion picture camera. Accordingly he set about building a camera with a fixed shutter speed of 1/40th second, this being in accordance with the then standard exposure for motion picture cameras. It had the coupling of shutter and film transport, preventing double exposures, as well as the collapsible feature of the lenses. It was a roll-film camera which held approximately six feet of film and with a device step towards the double movie frame size picture. **THUS THE FIRST LEICA CAMERA WAS BORN.** As related by Oskar Barnack, this all sounds very simple, actually it wasn't.

Oddly enough, some years later and after the Leica had achieved considerable fame as a still camera, its value as a test camera for motion picture purposes was again rediscovered in Hollywood.

Two cameras of the original type existed, one in the hands of Oskar Barnack and the other was taken by the Senior Head of the Leitz Works as a companion on his trip to the United States. Shortly before the War, Dr. Leitz returned to Germany and judging from the results that he obtained with the camera, he was convinced that this little instrument represented something that "had to be kept as a secret."

This was in 1914 and among the many pictures taken by Barnack, there is one of special interest and of of all time significance, "The second mobilization day." A picture of the type that we now designate as candid and one which so vividly depicts the seriousness of those days that it is to be considered as a document of a never-to-be-forgotten event of twenty-one years ago.



Above—Picture of Oskar Barnack, designer of the Leica Camera, taken in 1913 showing him working on a lens. Below is an early Leica photo taken in 1914 by Barnack of his daughter.

Naturally during the War the further development of the camera came to a stand-still, for there were more

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# Music for Your Movies

by  
William Stull, A.S.C.



**R**EMEMBER how your interest in a picture used to drop when, back in the old silent-picture days, you dropped into a theatre during the "lapper show," when both orchestra and organist were off duty—and how much better the film seemed as soon as the music started? Home-movie audiences react the same way. Even an unusually good picture, if presented only in the clotted silence of ordinary projection, won't seem half as interesting as if it would be supported by a pleasing musical accompaniment, and the average home-movie—the sort that you and I and the man next door make—will find audiences a whole lot friendlier and more appreciative if served with music.

Now that we're beginning to talk about music with movies, don't turn the page and wish you could afford a talkie outfit! This isn't that kind of an idea at all. It doesn't require a racket's worth of special talkie equipment, or anything that can't be found in the average home. In spite of the radio, most homes still include a phonograph, and that phonograph can easily be used to accompany home movies. All you need is a record that will fit your picture. Probably, you've got it already, at any rate, plenty of them are available at any music store. A standard 12-inch record will "sound" about 200 feet of 16mm film, while a 10-inch disc will take care of slightly over 100 feet.

The possibilities of film-and-gramophone home soundings are unlimited. First of all, of course, you can do a great deal by fitting sound to the films you have already made. Just to suggest a few of the possible record-picture combinations, I'll begin with mentioning Kotelbey's "By Blue Hawaiian Waters" (British Columbia record No. 98541). This seems ready-made to accompany the reel you made in Honolulu. It begins with a dreamy, Hawaiianesque theme, which perfectly suits those shots you made of the scenery and the night life of the islands, then it changes to an excited, bustling theme—none the less retaining something of the hula—which perfectly suits the shots of modern, Americanized Honolulu. The same composer's "In a Monastery Garden" (available in a variety of arrangements, one of the best of which is Brunswick No. 200671) is ideal for a reel dealing with the California Missions. If you have a reel of seacoast studies, especially shots of stormy surf breaking over rocks, try "The Storm" (Columbia No. 30252-D1, an excellent organ record which makes you feel as well as hear the roar of the storm-driven surf).

What's that? A winter-sports reel? Try Victor No.

35798—the old standby, "The Skaters Waltz." This record has an unusually vivid atmosphere, and lends itself to most all sports, including skating, sleighing, skiing, ski-jumping, and so on.

Did you bring back a reel from your trip to Mexico? Parlophon record B-48231, "Blue Povelion," seems well suited to a short Mexican subject, even including an introduction long enough to fit the explanatory opening titles we see on such films.

In general, the range of music available for home-movie scoring is almost endless. It is bounded only by your own musical taste, and the range of your film-subjects. You can have any type of music you care for, I would suggest, however, that dance-music is usually a bit too repetitious, and often too quick-tempered, to be of use with most films. Also, it is advisable to use records that have a reasonably high volume, as the music must compete with the clatter of the projector. Selections with definitely-marked rhythmic and diversified instrumentation will usually synchronize better than less positive pieces and whenever it is possible, use records which have here and there points which you can accurately synchronize with your film, this makes projection easier and more interesting.

Inevitably, the next step beyond this is to try making a film definitely to fit some record. It isn't half as hard as it sounds, either. Masao Imazumi, of Tokyo, Japan, entered two such films in the recent American Cinematographer Contest. One of them, "Super Express," is an example of what an amateur can do in making his own sound pictures. It opens with two shots—a long-shot and a close-up—of a railway guard blowing his whistle and signaling the train to start. The record opens with the same two whistle-blows, followed by a rhythmic puffing as the engine leaves slowly forward, blending into a musical interpretation of the staccato rush and rattle of the train's headlong flight, pleasingly varied as the scenes on the screen show the train pulling out of town and rushing on its journey over hills, through tunnels, across bridges, and so on, interspersed with more intimate shots showing the

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## Continuity for Reversed Motion

by  
**J. Dickinson Reed**

ONE of the first and simplest tricks learned by cinematists is producing reversed motion by turning the camera upside-down. It certainly gives amusing results, but after the first few shots made this way, most of us abandon it, because, after all, there aren't many ways we can legitimately use the trick in our filming. Professional cinematographers, on the other hand, frequently use this same trick as a means of filming action which would normally be impossible. And the idea can be applied just as well to amateur films, so here's a "backyard movie" story written around the reversed-motion idea.

### MAIN TITLE

#### JUMPING JACK Cost

Jack,  
Bill, Dick, Joe  
Jack's Father

A small boy  
His pals

Butch, the neighborhood "tough guy," Jack's friends, neighbor boys, etc.

Scene 1. Long-shot, exterior of Jack's home. Jack and his father come out of the front door, and walk toward the family car in the driveway. Jack is obviously excited.

Scene 2. Medium-shot. Jack and his father climb into the car, and drive off.

Scene 3. Long-shot in the street, as the car comes out of the drive and swings down the street. FADE OUT.

Scene 4. FADE IN. Long-shot at a stadium entrance. Jack and his father enter, and go through the gate.

Scene 5. Medium-shot. Jack and his father settle themselves in their seats inside the stadium. Jack is watching something on the field with great interest.

Scenes 6-15. Stock-shots of any track-meet, especially the high-jumps. Inter-cut ad lib with close-ups of Jack, showing excitement.

Scene 16. Medium-shot at Jack and his father, preparing to leave the stadium. FADE OUT.

Scene 17. FADE IN. Long-shot. Jack and his pals are busy in the back yard, setting up hurdles, bars, etc., for their own track meet.

Scene 18. Medium-shot. Jack, putting the finishing touches on a jumping bar, stops to pantomime how the athletes high-jumped.

Scene 19. Close-up of Butch, looking over the fence, and talking.

Scene 20. Close-up of Jack. He stops in the middle of a gesture, and looks toward Butch.

Scene 21. Close-up of Butch, same as Scene 19.

Scene 22. Medium-shot of Jack and his pals, clearly, they don't like Butch, but are rather afraid of the bigger boy.

Scene 23. Long-shot. Butch vaults over the fence, and swagger up to the boys.

Scene 24. Medium-shot of Butch. He looks contemptuously at the apparatus the boys have made, and speaks.

Title: "I'll show youse how to jump!"

Scene 25. Long-shot. The bar is in place, much higher than any of the smaller boys could jump. Butch clears it with ease. Jack and his friends are huddled on the ground, looking very dejected.

Scene 26. Medium-shot. Butch readjusts the bar on the very highest peg.

Scene 27. Long-shot. Butch tries to clear the bar at its new height, but cannot, his legs catch it, and as he talks, it breaks. He gets up, picks up the broken bar, looks at it, then throws it down and walks away.

Scene 28. Close medium-shot of Jack, he holds the broken bar in his hand, looks at it, then looks up and shakes his fist after Butch. He speaks.

Title: "Someday I'll show him—!"

Scene 29. Close-up of Jack, as he finishes speaking. FADE OUT.

Scene 30. FADE IN. Long-shot, on a street corner. Jack and his pals are talking. They see Butch and some of his cronies coming down the street. Jack motions his friends to hide around the corner.

Scene 31. Butch and his friends have reached Jack, who stops them. While Jack and Butch talk, Bill slips out and drops on his hands and knees behind Butch. Jack gives Butch a quick push, and he scurries over. Jack waves deviously at Butch, and starts to run. Butch scurries up and follows, while the rest of the boys join the chase.

Scene 32. Long-shot. Jack comes streaking down the street. Shoot this at 8 frames per second.

Scene 33. Same as Scene 32, Butch and the rest run across the picture, following Jack. Shoot this at 32 or 48 frames per second, so that they appear to move slowly.

(NOTE: If you wish, you can repeat these scenes several times on different locations.)

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# Synchronizing Sound Cartoons

by

Walter Lantz

Head of Cartoon Dept., Universal Studios

**A**NIMATED cartoons require much more exact synchronization than do normal talking pictures. Synchronizing errors which would pass unnoted in an ordinary talking picture become glaringly obvious in a sound cartoon. This is primarily due to the fact that modern sound cartoons are of a definitely rhythmic structure: the music and sound-effects set a positive rhythm, and the pictured action moves in precise accord. In the ordinary talkie, picture and sound can often be several frames out of step without appearing noticeably "out of sync," but if an animated cartoon is more than three frames "out of sync," it becomes unpleasantly evident even to the general public. In actual practice we regard an error of one frame between picture and sound-track as the maximum permissible.

For this reason, we plan our cartoons with great attention to following out a definitely rhythmic scheme in action and music, and during the actual production of the cartoon we maintain an ever-increasing chain of safeguards to ensure that drawing and music keep in step from start to finish.

The first step is the story-idea. This almost invariably concerns the action, rather than the music. Story-conferences, not too unlike those held over a dramatic picture, elaborate this idea, and give the Musical Director his start on the problem of "sounding" the cartoon. Once the story has begun to jell, we go into heavy conferences with the Musical Director, and begin to plot out the musical side of the picture. All of our music, incidentally, is composed specifically for our pictures; we have found it unwise to buy popular songs or descriptive compositions from outside composers, for in addition to the fact that a separate royalty can be charged for each additional "cut" scored with the piece, there is also the question of "dramatizing" the composition—a legal technicality which leaves a loophole for further attacks on undensured cartoon budgets.

At this point, we begin to depart from conventional standards of picture-making. We have found it practical to take as our basic unit, not a matter of frames or film-footage, but the bar of music. Originally, we wrote and recorded all our music so that a new bar was begun every second, giving us (at the standard sound-speed of 24 frames per second) 24 frames of centered action to each bar of music.

This, however, did not prove quite flexible enough. At

CARTOON No. 100.

TITLE: DR. JAIL - DR. JAIL

The image shows a sample page of a script for an animated cartoon. It is divided into four scenes, each with a drawing and musical notation. The scenes are labeled 'SCENE No.' and 'TITLE'. The musical notation is written in a shorthand style, with notes and rests. The drawings are simple line art sketches of cartoon characters and objects. The script is prepared for an animated cartoon titled 'DR. JAIL - DR. JAIL'.

SCENE No. 1. TITLE: DR. JAIL - DR. JAIL. Musical notation: 1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. 32. 33. 34. 35. 36. 37. 38. 39. 40. 41. 42. 43. 44. 45. 46. 47. 48. 49. 50. 51. 52. 53. 54. 55. 56. 57. 58. 59. 60. 61. 62. 63. 64. 65. 66. 67. 68. 69. 70. 71. 72. 73. 74. 75. 76. 77. 78. 79. 80. 81. 82. 83. 84. 85. 86. 87. 88. 89. 90. 91. 92. 93. 94. 95. 96. 97. 98. 99. 100.

SCENE No. 2. TITLE: DR. JAIL - DR. JAIL. Musical notation: 1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. 32. 33. 34. 35. 36. 37. 38. 39. 40. 41. 42. 43. 44. 45. 46. 47. 48. 49. 50. 51. 52. 53. 54. 55. 56. 57. 58. 59. 60. 61. 62. 63. 64. 65. 66. 67. 68. 69. 70. 71. 72. 73. 74. 75. 76. 77. 78. 79. 80. 81. 82. 83. 84. 85. 86. 87. 88. 89. 90. 91. 92. 93. 94. 95. 96. 97. 98. 99. 100.

SCENE No. 3. TITLE: DR. JAIL - DR. JAIL. Musical notation: 1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. 32. 33. 34. 35. 36. 37. 38. 39. 40. 41. 42. 43. 44. 45. 46. 47. 48. 49. 50. 51. 52. 53. 54. 55. 56. 57. 58. 59. 60. 61. 62. 63. 64. 65. 66. 67. 68. 69. 70. 71. 72. 73. 74. 75. 76. 77. 78. 79. 80. 81. 82. 83. 84. 85. 86. 87. 88. 89. 90. 91. 92. 93. 94. 95. 96. 97. 98. 99. 100.

SCENE No. 4. TITLE: DR. JAIL - DR. JAIL. Musical notation: 1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. 32. 33. 34. 35. 36. 37. 38. 39. 40. 41. 42. 43. 44. 45. 46. 47. 48. 49. 50. 51. 52. 53. 54. 55. 56. 57. 58. 59. 60. 61. 62. 63. 64. 65. 66. 67. 68. 69. 70. 71. 72. 73. 74. 75. 76. 77. 78. 79. 80. 81. 82. 83. 84. 85. 86. 87. 88. 89. 90. 91. 92. 93. 94. 95. 96. 97. 98. 99. 100.

Above: a sample page of a script prepared for an animated cartoon. Note that bars of music are indicated for each scene.

times, we might want a faster tempo, or a slower one. Therefore, we now use three standard tempos: 20 frames to the bar, 24 frames to the bar, and 32 frames to the bar. As a rule, we begin our cartoons at the 32-frame tempo, increase midway to the 24-frame tempo, and finish briskly at the 20-frame tempo.

These standards make the matter of synchronizing the drawings and the music relatively easy. Naturally, if we allowed one frame of film to each drawing, we would have, for example, 24 drawings to each bar of music, and we would know that at every 25th drawing, the sound-track would be starting a new bar of music. In actual practice, however, the number of frames allowed each drawing varies greatly; sometimes, for quick action, we will use one frame per drawing, while at other times, when a character is to hold an expression, for instance, the same drawing may run for seven or eight frames: the average, however, is two frames per drawing. Therefore, we can pretty definitely say that the 20-tempo means 10 drawings to the bar, the 24-tempo, 12 to the bar, and the 32-tempo, 16 to the bar.

Next, we prepare the scenario, which is the first definite step in interlarding our drawings and music. At one side of the page, I make a little sketch that gives a rough idea of the scene. Beside it, on the right-hand side of the sheet, is a written description of both action and sound, including dialog and sound-effects (if any). In between is a column of figures, showing just what bars are allotted to the scene. Thus if, for example, a scene covers bars No. 1 to 10, the animator knows that at the 20-tempo

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# WHEELS OF INDUSTRY

## Maurer Joins Berndt

● Eric Berndt, long an important factor in the 16mm field, will widen the scope of his activities with the addition of John M. Maurer to his company. This new association changes the corporate name of the company to The Berndt-Maurer Corp.

Mr. Maurer is well known in the engineering field of sound recording and reproduction. He is said to be one of the outstanding authorities on the subject of Optics as it affects sound picture recording, and Chemistry applied to film manufacture and processing. Maurer has done a great deal of research on the subjects mentioned, especially optics. Under his association with Berndt it is his plan to manufacture new devices that he has invented for both the 16mm and 35mm field.

## New Harrison Filter

● According to an announcement from Harrison & Harrison, manufacturer of light and effect filters, that company has just completed for the market a 3-in.-1 multi filter. This is composed of an Auro 3, G and 23A Filter contained in a single oblong filter. It comes in two sizes 1 1/2" wide and 1 1/4" wide.

## New Bell & Howell Projector

● An innovation in 16mm movie projectors is Filma Model 129, just announced by Bell & Howell.

This model is different in appearance from any other movie projector. It has a low center of gravity, achieved by a low "streamlined" base, and a new "fore and aft" placing of the reels—a desirable feature, especially in view of the fact that the projector accommodates 1600-foot reels which permit a one-hour program without a stop for refilming.

A 750-watt lamp, with the high efficiency optical system of this projector, provides ample illumination for all occasions except where the maximum possible screen size and brilliance are required, in which case the new 16mm 1000-watt Filma Auditorium projector is recommended. For use in the home, school, church, and club, and in halls

and auditoriums of moderate size, Model 129 is ideal. It is claimed brilliant pictures up to 12 feet wide, or even larger, can readily be projected.

This projector comes in two types—one being a no-resistance type, using a Cooke 2-inch lens and a 750-watt lamp operating directly from the line current, the other having a variable resistance unit and voltmeter used in connection with a 100-volt 750-watt lamp. This type employs the extremely fast 2-inch f1.65 lens, increasing still further its effective illumination.



It is stated efficient lamp economy is achieved by suiting the illumination to the need. In the no-resistance type, the 750-watt lamp may be replaced, when less illumination is desired, by a 300-, 400-, or 500-watt line voltage lamp. In the variable resistance type illumination may be reduced and lamp life prolonged by setting the resistance lever to give the lamp less than the normal 100-volt load. Or a 400- or 500-watt lamp may be used.

Lens interchangeability is possible with the 129. The lens which is standard equipment with this model may be replaced with any one of a full range of extra lenses to meet special requirements—from the wide-angle 0.64-inch for close quarters to the 4-inch for long throws.

Among other features of the Filma 129 are a two-way gear-operated tilt manual frame, fast power rewind, convenient pilot lamp, adequate cooling system, provision for still projection, reverse switch, and take-up snubber to prevent film breakage.

## Rapid Winder for Leica

● The Leica camera has always been noted for its speed in making successive exposures. E. Leitz, Inc., announces a device which permits even greater speed when making a series of photographs in rapid succession. The new device is known as the Rapid Winder, and consists of a polished metal cap which fits over the winding knob of the Leica.

By means of a thin, flexible steel cable which terminates at a metal ring which fits slipped over the finger, the shutter and film are adjusted for the next exposure by pulling on the ring. This action rotates the winding knob of the camera. When completely wound the steel cable is permitted to slide back into the cap where, by a spring action, it coils, ready for the next exposure. In short exposures can be made with the Leica and this new Rapid Winder as quickly as the finger can pull the ring, one straight movement, outward, and the camera is ready for the next picture. Only a fraction of a second is needed with this device to set the camera.

News, sport, candid, and aerial photographers will be especially benefited by it. As it is attached and detached to the Leica camera with ease, it can be left on the camera, or, if the owner desires, can be attached and used only on certain occasions where it is particularly indicated by the work at hand.

## New Agfa Leader

● The Agfa Ansco Film Co. has inaugurated a new leader on their 16mm film. Previously film being returned from their processing plant had the green leader with the name Agfa in the center. An addition has been made to this. The year has been added. This permits you to identify immediately the year in which you made your picture.

## Photo Spot-Flood

● The Photolite Company, who recently announced their Photo Spot light, now announce in addition to this accessory in the way of a parabolic reflector which is substituted for the front condenser on this light. The lights can be secured with both pieces of equipment.



## Amateur Awards

In Hollywood last week, the American Society of Cinematographers awarded to two amateur cameramen the prizes which, for owners of miniature movie outfits, correspond to the awards which the Academy of Motion Picture Arts and Sciences give to cinema professionals. To R. B. Cleady, a Los Angeles commercial

artist, went \$250 for his 200-ft. film, *NEW HORIZON*. A 20-year-old Japanese, Tatsuchi Okamoto, who won the photography award two years ago, last week took \$100 second prize with a picture called *TENDER FRIENDSHIP*.

Organized 17 years ago to provide a medium for distributing and testing new technical ideas, the A.S.C. has become the No. 1 technical club of Hollywood's cameramen. Its 400 members, including almost every important cameraman in the industry, rarely meet but contribute enthusiastically to the society's annual contests. The contests are governed by only two rules: (1) contestants must not have professional assistance; (2) they must not use 35 millimetre film and reduce it to the 8 or 16 millimetre sizes to which the contest is limited. Since it is impossible to detect reduced film, each entry is accompanied by a sworn statement that no such process has been used.

In *NEW HORIZON*, Cinematographer Cleady presented the life of a farm girl at a moment of crisis. One reel, almost without titles, tells the story of her efforts to marry the man she loves in spite of her father's opposition which keeps her chained to the farm. Okamoto's heroine was a Japanese girl making a doll as a birthday present for a friend. Pictorial values, backgrounds of the Japanese countryside in spring, and the delicate grain which Cinematographer Okamoto had achieved gave his film distinction. Both winners last week used *Bausch & Lomb* Cleady's camera was an *Eastman* No. 60 with an f:1.9 lens. Okamoto used the cheapest *Cine Kodak* Eight made, model No. 20, which cost \$34.50.

# Amateur Movie Contest *now* BIG NEWS!



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## CONTINUITY FOR REVERSED MOTION

(Continued from Page 75)

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Scene 34 Long-shot, a yard with a fence or wall four or five feet high. Jack runs into the picture, and bounces easily to the top of the wall, and down the other side. Butch and the boys come in, try to climb over the wall, but cannot. They continue an around, crowding through a narrow gate.

Scene 35 Long-shot of a barn, with a loft-door about five feet from the ground, also doors at ground level. Jack runs in from the right, makes a running jump up to the loft, and sits down to wait. Soon the others appear, they see Jack, and rush into the barn. As the last one disappears, Jack jumps down, and runs out of the loft, just as Butch appears in the loft-door.

Scene 36 Long-shot. A country road with a bridge in the foreground. Jack, with his pursuers close behind him, runs down the road toward the lens.

Scene 37 Long-shot of the bridge, from the side. Jack runs into the picture from the right, and jumps from the bridge into the water. The others stop, and scramble down the bank. When they are all down on the riverbank, Jack jumps straight up from the water to the bridge, and runs off to the left.

Scene 38 Long-shot of an airplane in the air.

Scene 39 Long-shot of a field. Jack, followed by Butch & Co., runs in from the right, stops, and looks up.

Scene 40 Same as Scene 38; a short flash.

Scene 41 Same as Scene 39, Jack sprints forward, as though chasing the airplane.

Scene 42 Closer shot, Jack enters, and jumps right out of the top of the picture.

Scene 43 Close medium-shot, in the airplane. Jack shoots up from the bottom of the picture, and lands in the cockpit.

Scene 44 Butch and the others stop, looking up, and shaking their hats at Jack.

Scene 45 Close-up of Jack, in the airplane. He waves demurely at Butch, and speaks.

Title "Now who's the best jumper?"

Scene 46 Close-up of Jack, as he finishes speaking. **FADE OUT QUICKLY**

Scene 47 **FADE IN QUICKLY** (Or a top-dissolve, if possible). Close-shot of Jack—sleeping in a chair. Clutched in his hand is a booklet, "HIGH JUMPING." **FADE OUT**

## THE END

Before you say, "Impossible!" see how your camera can make Jack do

these incredible jumps! It is easy enough for anyone to jump down from the fence, the loft, or the bridge, and if you film Jack jumping down, with your camera wrong side up, and reverse the scene when you edit the film, he will apparently be jumping up. Simple, isn't it? In Scene 34, for instance, you begin by putting Jack on top of the wall, marking his position with a piece of chalk. Then—with the camera upside-down—have him jump backward and down from the wall, then run off—still moving backwards. If you have a tripod, an angle-iron clamp will enable you to use the camera from the same general position whether it is upside-down or right side up, so all you will need to do to show Jack jumping down on the other side of the wall will be to turn the camera over, and have him jump from the position you have already marked. Otherwise you can divide the shot into two separate scenes. The same general method, of course, will give you Jack's leap up to the barn-loft. In the same way, the upside-down camera will enable you to show Jack jumping from the water up to the bridge. His jump into the water, of course is filmed normally, then, with the camera reversed, have him walk in backward from the left side, and jump backward into the water; the reversed film will show him at first in the water, then suddenly shooting up to the bridge, and walking off.

The airplane-jump is a bit harder. For the best effect, make this shot (Scene 42) under a horizontal bar, such as you can find in many playgrounds. Have this as high as Jack can jump, and, of course, out of the picture at the top. Jack enters and jumps, catches the bar, and pulls himself quickly out of the picture. A simpler method would be to use a low camera set-up, and have Jack run straight into the picture and jump over the camera. (A wide-angle lens will help this.) For Scene 43, all you need is an open-cockpit airplane on the ground. If the camera is in a fairly low position, shooting upward, you can have only sky for a background, and by tilting the camera sideways, you can give the impression that the plane is in level flying position. Of course, the camera is upside-down. Begin your scene with Jack sitting in the cockpit, then have him stand, turn around, and jump straight down (backward, of course) from the cockpit. By quick cutting, you will be able to get a surprisingly effective jump, it will help, too, if the plane you choose is a fairly high one, like a "Fledgling" or an old Delfland, so that Jack's backward jump will carry him pretty well out of the picture at the bottom.

Naturally, the higher these jumps are, the more astounded your audiences will





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be, so don't feel yourself bound by the heights specified in the scenario. If the boy who plays Jack in your production can't safely make the four or five-foot backward jump down, make them smaller, but if your young actor is larger, and can make higher jumps-down, by all means have them as high as he can safely manage. Also, if your particular neighborhood offers other interesting

opportunities for this trick, make use of them, and add them to the story, filming them the same way. The best use of these "backyard moves" is always made by adapting them to your own, individual requirements: you can always add characters, or eliminate them, and add such scenes as you feel would make the picture more interesting with your family "stock company."

## SYNCHRONIZING SOUND CARTOONS

(Continued from Page 35)

he has 200 frames, or 100 drawings, for that scene, while the Musical Director knows that he must allow ten bars for the scene.

If a definite musical effect—say a whistle or a bugle-call—comes in the scene, its exact place is indicated by the statement that it starts in such-and-such a bar. Let's say that "Oswald" is to blow a bugle-call in the middle of the scene; it must start in bar No. 5 of the film, and in frame No. 101 of the film, and in drawing No. 51. In the same way, it is noted at what bar that particular sound ceases, so the animator knows exactly when to make the drawings of "Oswald" taking the bugle from his lips again.

In a dance, or a strongly rhythmic walk or run, we have to be sure that the feet of the characters are on the floor at the start of each bar. This keeps them definitely in step with the rhythm of the music. And it is easy for the animator: he knows that new bars will start at drawings 1, 11, 21, and so on, so he spaces his intermediate drawings to ensure that the feet will be in the right positions at these key drawings.

When the scenario is completed, the Musical Director writes his final score, making sure that each bar (they are all numbered, by the way), fits into its proper place in the scenario.

At the same time, the animators get busy turning out their drawings, making sure that the key drawings contain exactly the action needed to synchronize with their accompanying music.

Now, the music is recorded. As a rule, our cartoons consist of three definite musical movements: the slow, 32-Tempo start, the faster 24-Tempo middle, and the brisk 20-Tempo finish. These three parts are usually recorded separately, sometimes, the sections themselves are even broken down into shorter units, which are recorded piecemeal. Naturally, they must be recorded with the greatest attention to accurate rhythm and tempo: so we have worked out a special system for giving the right beat to the orchestra. We have animated several strips of film, showing a baton moving very accurately to each of

the three principal tempos we use, and in varying rhythms—march, waltz, etc. When the orchestra is ready to record, the proper cue-film is put in the projector in the scoring-stage usually, we use a simple loop of film, rather than a reel. This is projected on a screen, and gives the conductor his beat. He, in turn, follows it with his baton, and gives it to the musicians, who follow him, rather than the screen. In this manner, we are assured that the tempo of our music will be unwaveringly accurate.

Since the music is usually recorded in three or more sections, the arrangers provide at the end of each section an appropriate musical transition from one rhythm to the other, often changing key in the process, and providing a music-track that is easily cut when the sections are all recorded and ready to be joined.

As a rule, the music track is completed considerably before the picture is photographed. Sometimes the music has been completely recorded even before the drawings were made!

Sound-effects are recorded on a separate track from the music, as is dialog. These—especially the latter—one always recorded before the drawings are made. Thus, the sound-track footage is carefully translated into terms of drawings, so that the animator can draw the proper lip-movements and so on in exactly the right manner. Speech is broken down into its component vowels; for example, suppose someone was to say the word "Vacation." This contains three definite vowels, of different lengths: "Va-ca-tion," and would require these definite lip-movements. I would record this, and then find out at exactly what point each of the vowel-sounds started. This will show the animator at what frame each vowel-motion must come, and, in turn, at what drawing he should provide the necessary lip-movements.

When the drawings are completed, they are photographed in their proper order, allowing each its requisite number of frames. The man at the camera has a copy of the scenario, and with it a special instruction-sheet giving him

special information if only is necessary. It is his duty to check up on the drawings, and make sure that they are in exact accord with the bar, drawing and frame specifications on the scenario.

Now, we have four sets of film which must be assembled into one to form our completed cartoon. On one strip is the action—photographs of the drawings. On the next, the music, with all of the sub-sections joined into one continuous track. Thirdly, we have short sections of sound-track carrying the dialog, and lastly, similar short lengths carrying the sound-effects. The last three, of course, are on 17.5mm film, as we use the split-film recording methods. On the blank part of the music-track, we have already marked the main synchronizing frame or drawing numbers.

Synchronizing the music-track and the picture is simple. If both have been made right, they should be "in synch" immediately. If a test on a Moviola, or in a twin-film projector shows any error, it is generally simple to correct it by trimming a frame or two out of picture or music, as may be preferable. Generally, it is easier to trim the picture, for there are plenty of chances to rip out a frame or two—the error seldom exceeds this—when one drawing is held for several frames. In the main, though, this phase of the cutting has been done already, in the earlier stages of making drawings and writing the score.

Synchronizing the sound-effects or dialog is a little harder. However, we know—to the frame—just where they are to go, so we simply put the picture on a multiple rewind, with the sound-effects track beside it. The short bits of effects-track are cut in at their proper points, and joined together with blank film.

After that, it is simply a matter of routine "dubbing." The dialog-and-effects track are re-recorded with the music-track to form a single, complete sound-track. If this proves O.K. on projection, we are ready to make our composite Master Print, and from then on, turning out perfectly-synchronizing release-prints is ordinary laboratory routine.

So, by treating sound and drawings together from the start—planning on accurate synchronization in the scenario itself, and cross-checking for synchronism through every stage of production, we can be certain that once sound and picture are actually on film, they will fall together like perfect pieces of machinery. Looking after the details of synchronizing before there is anything to actually synchronize, we find that synchronizing presents no problem in the cutting-room.

## The Leica Comes of Age

(Continued from Page 73)

important things at stake. However, after the War, Barnack again devoted much time to his hobby. From the continued use of his original Leica, he perceived that his camera possessed great photographic and commercial possibilities and that it really represented a distinct advancement in camera design. However, he realized that the camera that he held in his hand was far from perfect, so he set about building a new camera, adding improvements that had been forming in his mind for some time. Such things as film magazine and a new shutter of the focal-plane type, that had variable-width openings and one that also obviated the necessity of covering the lens when winding the shutter. Along with these improvements, the first high-quality anastigmat lenses designed by Dr. Berek of the Leitz Works, made their appearance and soon things were progressing rapidly.

In 1924, the first battery of six Leica cameras left the factory. However, the year of 1925 was the first real Leica year, for at that time the Leica was introduced to the various dealer's associations throughout Germany. These dealers readily saw the possibilities of this new camera, which was destined to revolutionize photographic conceptions, and consequently in firm belief of success, placed their sales vigor behind the Leica. Thus, these dealers played a very important part in the introduction of the Leica and thereby increased the demands for this camera. Of the original Model "A" Leica, 53,000 were sold. Model "B," which was similar to Model "A" with the exception that it had a Compur shutter, had 2,000 sales.

While the world was accepting Oskar

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Barnack's camera in a most unprecedented manner, Barnack was still hard at work devising and perfecting new accessories for the camera. One of the most important was the Fily enlarging apparatus, which was introduced in 1926.

It is worthwhile here to notice, that in all of the later model Leicas that were to come, they were all to be basically the same as the original model. Thus the earliest Model "A" is readily convertible into the latest Model "F." In 1931 the Model "C," with interchangeable lenses, was placed upon the market. Of this model and the somewhat similar Model "E" that replaced it, 24,000 cameras have been sold. The Models "D" and "F" with built-in range-finders made their appearances in 1932 and 1933, respectively. To date, 71,000 of these cameras have been manufactured. Thus the over 150,000 Leica cameras that are now in use represent the triumph of an idea in a span of time of barely ten years of sales.

While the Leitz Works hesitate to disclose all of the outstanding and important innovations that will most likely be offered during 1935, these following items may be expected in the near future. An f 4.5 Tele-lens of 200mm focus, a soft portrait lens, an f 2.2 lens of 90mm focus, and an optical near distance focusing device which permits the Leica to be used at close range without the interpolation of front lenses and which can be utilized for adjustment at such distances, by means of a distance meter.

In the offices of The American Society of Cinematographers, beside the pictures of Thomas Edison and George Eastman, there hangs an autographed self-portrait of Oskar Barnack, that was made with one of his cameras. The technical excellence of this portrait is so strikingly noticeable, that one cannot help but feel, as he gazes at this portrait of this sincere and intelligent man, that Oskar Barnack's Leica has come of age!

## Miniature Shots for Your Home Movies

(Continued from Page 23)

## HUGO MEYER LENSES

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of excellent kits available for building real scale-model boats and planes, and if you aren't enough of a model-craftsman to tackle the job of making them (though they are simple enough to assemble), you will probably find a neighbor or a neighbor's son who already follows the hobby. Very few of the scale-model boats are self-propelling, so the best thing to do is to tow them with wires placed below the water-line.

The model planes are divided into two main classes: the scale-models, which are often marvellously accurate reproductions of real planes, and flying-models, which, while not so accurately proportioned, fly under their own power—which the others do not. If you can work out-of-doors, where you have lots of light, and can shoot slow-motion, the flying models will often do quite well. But for the best results, the scale-models are the thing. In making your scenes, you can follow the professional practice of suspending them on fine, invisible wires, inclined, if you are trying to film landings or take-offs. If you are using lights, keep a close watch on these wires, lest they glisten and show up in the picture when you catch a gleam, rub it out with a bit of putty.

The proellers of model planes can often be troublesome: those of the flying models have to be much larger than natural, while those of the non-flying, scale models don't usually move. Professionals often remove the "prop" entirely, and substitute discs of transparent celluloid which give an excellent suggestion of the blur of a rapidly whirling propeller. Try it! The

disc must, of course, be cut to the right size, and mounted behind the regular "spinner," or stream-lined hub-cap.

In general, whether you are shooting miniature trains, boats, or airplanes, you'll get the most convincing results if you use models that are accurate as to scale and design, rather than just any toys you may have handy. You'll find that the smoothest, most natural-looking shots are those made at slow-motion speeds—32 at least, and preferably 48 or 64. If you can use a very slight degree of diffusion—about a 1/32 or 1/64 diffusion filter—it will help, too, as the faster diffusion will smooth off the sharp edges, and make the miniature seem more natural. Generally speaking, too, a 1-inch lens, wide open, will prove better than a wide-angle objective, as the rather lessened depth of focus adds naturalness in closer shots, giving a better perspective. If you can, it is well to follow the example of the professional miniature-experts, lighting the background (if any) quite flat, and the miniature itself with a good deal of contrast.

Above all, don't jump to the conclusion that you'll need a lot of detailed scenery and the like for such miniatures. Some professional miniatures are, of course, marvels of painstaking detail, but many of the best of them are so simple that unless you looked through the camera, you wouldn't believe that the shot could be at all effective on the screen. Shooting primarily for night-effects, you can concentrate largely on the foreground, letting the "distance"

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go dark. A neutral-tinted, unpigmented rug will often double excellently for grass, twigs for trees, flour, rock-salt, and even cotton-wool, for snow and if you compose and light your picture properly, you can concentrate attention

upon the moving miniature, with the result that little else will be noticed.

And—when miniature shots in themselves pall—try some double-exposure work, melting living people into the miniatures. It can be done!

## MUSIC FOR YOUR MOVIES

(Continued from Page 74)

passengers, the engineer at his throttle, the fireman feeding coal into the engine's glowing maw, and finally both picture and accompaniment decelerate as the train glides into the terminal at the end of the run.

I am sure that Insaurrala began with simply an idea that he could make an interesting picture about a train. Then he found the record. (It is "Golap de Chamin de Fer," a Polydor record, if you are interested.) It began with the guard's two whistle-blows obviously, that gave a cue for the opening scenes of his picture. Next came the logical sounds suggesting the train starting. The body of the piece was well adapted to rhythmic cutting, for changes in tempo, key and instrumentation naturally suggested corresponding changes in the pictured scene. Phrases played at a lower, but increasing volume naturally suggested shots showing the train emerging from a tunnel, phrases played more staccato, and recorded at a higher volume-level similarly suggested the shots made in the engine, and the end of the record, coming to a swiftly decelerating climax, just as inevitably suggested the treatment of the end of the film.

Anyone with an appreciation of musical and filmic rhythms will find it not only easy, but extremely interesting to fashion his films to fit recorded music in this manner. The subject-matter is almost unlimited in scope, ranging from the simplest scenes to the most pretentious productions. One last word of caution, however: while the simplest method of projection is the projector-and-phonograph method I've described, I have no doubt that some of you are already wondering why it wouldn't be simpler still to use one of the synchronous disc-type talkie outfits commercially available, like the Filmsphone and the Kinetophone. Aside from the matter of cost, which bothers most of us, such machines would be preferable except for one detail—most commercial gramophone records are made to play at 78 r.p.m., while the majority of disc talkie machines will only play the professional-type disc, which run at 33 r.p.m. This will automatically limit you to the "long-playing" records, which offer only a lim-

ited selection as yet. So, if you try this idea out, and like it enough to want a synchronous projector, make sure before you buy that the machine will accommodate standard 78 r.p.m. records.

## Let's Talk About Lenses

(Continued from Page 71)

the same way, a shallow room may be made to appear deeper by using a wide-angle lens.

It appears, then, that we must at all times bear in mind distortion in perspective, and either frankly admit its faults in those shots not possible otherwise, or deliberately take advantage of the effect. You must admit, however, that there can be and often is distortion, no matter how perfectly corrected your lens. Don't let it prove a bugaboo—just bide it and make it work to your advantage.

And now, in closing this series on the lens, may I humbly hope that our discussions have proven worthwhile in bringing a little closer to our cine work knowledge bearing directly on the possibilities of improvement. Admittedly, I am no authority on the lens, my only excuse for having bored you for five months being to try to digest a lot of deeply technical information and reward it in laymen's lexicon. The written word must be accepted with a bit of reflection, for it must necessarily be somewhat brief and because it has not the amplification of conversational information. Therefore, when you read something not quite jelling with your own thoughts, try to reward it or translate it into your own manner of thinking.

### Corrosion

On page 366 of the December 1934 issue we stated the Goerz Dagor was faster than the Zeiss Pratar. The  $f$  value of the Zeiss Pratar, composed of two similar components, a  $f/6.3$ , that of the Dagor is  $f/6.8$ , which from the standpoint of  $f$  value makes the Pratar the faster lens. The loss by reflection is the same in both lenses because each has four air-glass surfaces. Loss at the interfaces between different kinds of glass is insignificant. The loss due to absorption depends on the thickness of the glass and not on how many pieces of glass there are.

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## 8MM CLUB ORGANIZED

The first meeting of the Los Angeles 8mm. club brought out 20 members. This club will hold its meetings once a month alternating between the Eastman and Bell & Howell projection rooms.

It is the purpose of this club to present each picture with a musical accompaniment of its meetings. There will be no effort made to create synchronized music. A phonograph record that is thematic will be selected.

## CLARDY WINS AGAIN

Randolph Clardy, who was awarded the Grand Prize in the American Cinematographer Contest for 1934, was also given the first prize in the Los Angeles Cine Club Contest. Clardy's picture was his 8mm. subject "New Horizon."

## EASTMAN AWARDS CLARDY

Because Randolph Clardy won the first prize in the American Cinematographer contest in 1933 and 1934 with 8mm. film, the Eastman Kodak Store awarded him one of their latest 8mm., 300-foot projectors.

## PRACTICAL AMATEUR PHOTOGRAPHY

Little, Brown & Company have just published a book entitled "Practical Amateur Photography," authored by William S. Davis. The book contains 264 pages and sells for \$2.25.

The greater part of this book is given to still photography. One chapter is devoted to Amateur Cinematography. The book is basic in its contents and is aimed entirely at the beginner. It deals to a great extent in equipment and materials available and their characteristics.

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